

One-loop effective actions and higher spins. Part II

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ABSTRACT: This ancillary file contains a repository of results concerning all two point correlators (including mixed ones) of symmetric currents of any spin up to 5 and in any dimensions between 3 and 6.

KEYWORDS: Higher Spin Gravity, Higher Spin Symmetry, Renormalization Group.

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4. Correlators

4.3 All types of correlators

The results of this section are organized as follows: first come the ones for the scalar model, sec. 4.3.1-4.3.3, then those of the fermion models, sec. 4.3.4-4.3.6. Sections 4.3.1 and 4.3.4 contain the full transverse analytic expressions of the correlators. Sections 4.3.2 and 4.3.5 contain the UV and IR expansions of the latter, as well as the above-mentioned UV-IR expressions. Sections 4.3.3. and 4.3.6 are devoted to the non-transverse local parts of the correlators. These are the non-transverse expressions which have not been already discussed in the previous section and should be eliminated by the use of tadpole and seagull terms.

4.3.1 Scalar amplitudes

Scalars, spin 0 x 0, dimension 3:

$$\tilde{T}_{0,0;3D}^s = -\frac{T}{8} \frac{1}{k} \quad (4.37)$$

Scalars, spin 0 x 0, dimension 4:

$$\tilde{T}_{0,0;4D}^s = \frac{i}{8\pi^2} \left(1 - \frac{L_0}{2}\right) - \frac{iS}{8\pi^2} \frac{1}{k} \quad (4.38)$$

Scalars, spin 0 x 0, dimension 5:

$$\tilde{T}_{0,0;5D}^s = -\frac{i}{32\pi^2} m + \frac{T}{32\pi} \left(-\frac{1}{4}k + \frac{m^2}{k}\right) \quad (4.39)$$

Scalars, spin 0 x 0, dimension 6:

$$\tilde{T}_{0,0;6D}^s = \frac{i}{16\pi^3} \left(\left(\frac{1}{9} - \frac{L_0}{24}\right) k^2 + \left(-\frac{7}{12} + \frac{L_0}{4}\right) m^2 \right) + \frac{iS}{48\pi^3} \left(-\frac{1}{4}k + \frac{m^2}{k}\right) \quad (4.40)$$

Scalars, spin 0 x 2, dimension 3:

$$\tilde{T}_{0,2;3D}^{s,t} = k^2 \pi_{\nu\nu} \left(-\frac{i}{4\pi} \frac{m}{k^2} + T \left(\frac{1}{16} \frac{1}{k} - \frac{1}{4} \frac{m^2}{k^3} \right) \right) \quad (4.41)$$

$$\tilde{T}_{0,2;3D}^{s,nt} = \eta_{\nu\nu} \left(\frac{i}{2\pi} m \right) \quad (4.42)$$

Scalars, spin 0 x 2, dimension 4:

$$\tilde{T}_{0,2;4D}^{s,t} = k^2 \pi_{\nu\nu} \left(\frac{i}{6\pi^2} \left(\left(-\frac{1}{3} + \frac{L_0}{8} \right) + \frac{m^2}{k^2} \right) + \frac{iS}{6\pi^2} \left(\frac{1}{4} \frac{1}{k} - \frac{m^2}{k^3} \right) \right) \quad (4.43)$$

$$\tilde{T}_{0,2;4D}^{s,nt} = \eta_{\nu\nu} \left(-\frac{iL_1}{8\pi^2} m^2 \right) \quad (4.44)$$

Scalars, spin 0 x 2, dimension 5:

$$\tilde{T}_{0,2;5D}^{s,t} = k^2 \pi_{\nu\nu} \left(\frac{i}{32\pi^2} \left(\frac{1}{4} m + \frac{m^3}{k^2} \right) + \frac{T}{32\pi} \left(\frac{1}{16} k - \frac{1}{2} \frac{m^2}{k} + \frac{m^4}{k^3} \right) \right) \quad (4.45)$$

$$\tilde{T}_{0,2;5D}^{s,nt} = \eta_{\nu\nu} \left(-\frac{i}{12\pi^2} m^3 \right) \quad (4.46)$$

Scalars, spin 0 x 2, dimension 6:

$$\begin{aligned} \tilde{T}_{0,2;6D}^{s,t} = k^2 \pi_{\nu\nu} & \left(\frac{i}{12\pi^3} \left(\left(-\frac{23}{1200} + \frac{L_0}{160} \right) k^2 + \left(\frac{43}{240} - \frac{L_0}{16} \right) m^2 - \frac{1}{5} \frac{m^4}{k^2} \right) + \right. \\ & \left. + \frac{iS}{60\pi^3} \left(\frac{1}{16} k - \frac{1}{2} \frac{m^2}{k} + \frac{m^4}{k^3} \right) \right) \end{aligned} \quad (4.47)$$

$$\tilde{T}_{0,2;6D}^{s,nt} = \eta_{\nu\nu} \left(\frac{iL_2}{64\pi^3} m^4 \right) \quad (4.48)$$

Scalars, spin 0 x 4, dimension 3:

$$\tilde{T}_{0,4;3D}^{s,t} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{4\pi} \left(\frac{5}{4} \frac{m}{k^2} - 3 \frac{m^3}{k^4} \right) + T \left(-\frac{3}{64} \frac{1}{k} + \frac{3}{8} \frac{m^2}{k^3} - \frac{3}{4} \frac{m^4}{k^5} \right) \right) \quad (4.49)$$

$$\tilde{T}_{0,4;3D}^{s,nt} = k_{\nu}^2 \eta_{\nu\nu} \left(\frac{i}{\pi} m \right) + \eta_{\nu\nu}^2 \left(\frac{i}{2\pi} (-k^2 m + 4m^3) \right) \quad (4.50)$$

Scalars, spin 0 x 4, dimension 4:

$$\tilde{T}_{0,4;4D}^{s,t} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(\frac{23}{120} - \frac{L_0}{16} \right) - \frac{7}{6} \frac{m^2}{k^2} + 2 \frac{m^4}{k^4} \right) + \frac{iS}{5\pi^2} \left(-\frac{1}{8} \frac{1}{k} + \frac{m^2}{k^3} - 2 \frac{m^4}{k^5} \right) \right) \quad (4.51)$$

$$\tilde{T}_{0,4;4D}^{s,nt} = k_\nu^2 \eta_{\nu\nu} \left(-\frac{iL_1}{4\pi^2} m^2 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{8\pi^2} (L_1 k^2 m^2 - 3L_2 m^4) \right) \quad (4.52)$$

Scalars, spin 0 x 4, dimension 5:

$$\begin{aligned} \tilde{T}_{0,4;5D}^{s,t} = & k^4 \pi_{\nu\nu}^2 \left(\frac{i}{8\pi^2} \left(-\frac{1}{32} m - \frac{1}{3} \frac{m^3}{k^2} + \frac{1}{2} \frac{m^5}{k^4} \right) + \right. \\ & \left. + \frac{T}{16\pi} \left(-\frac{1}{64} k + \frac{3}{16} \frac{m^2}{k} - \frac{3}{4} \frac{m^4}{k^3} + \frac{m^6}{k^5} \right) \right) \end{aligned} \quad (4.53)$$

$$\tilde{T}_{0,4;5D}^{s,nt} = k_\nu^2 \eta_{\nu\nu} \left(-\frac{i}{6\pi^2} m^3 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\frac{1}{12} k^2 m^3 - \frac{1}{5} m^5 \right) \right) \quad (4.54)$$

Scalars, spin 0 x 4, dimension 6:

$$\begin{aligned} \tilde{T}_{0,4;6D}^{s,t} = & k^4 \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(\frac{11}{14700} - \frac{L_0}{4480} \right) k^2 + \left(-\frac{337}{33600} + \frac{L_0}{320} \right) m^2 + \frac{1}{42} \frac{m^4}{k^2} - \right. \right. \\ & \left. \left. - \frac{1}{35} \frac{m^6}{k^4} \right) + \frac{iS}{35\pi^3} \left(-\frac{1}{64} k + \frac{3}{16} \frac{m^2}{k} - \frac{3}{4} \frac{m^4}{k^3} + \frac{m^6}{k^5} \right) \right) \end{aligned} \quad (4.55)$$

$$\tilde{T}_{0,4;6D}^{s,nt} = k_\nu^2 \eta_{\nu\nu} \left(\frac{iL_2}{32\pi^3} m^4 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(-\frac{L_2}{2} k^2 m^4 + L_3 m^6 \right) \right) \quad (4.56)$$

Scalars, spin 1 x 1, dimension 3:

$$\tilde{T}_{1,1;3D}^{s,t} = k^2 \pi_{\mu\nu} \left(-\frac{i}{4\pi} \frac{m}{k^2} + T \left(\frac{1}{16} \frac{1}{k} - \frac{1}{4} \frac{m^2}{k^3} \right) \right) \quad (4.57)$$

$$\tilde{T}_{1,1;3D}^{s,nt} = \eta_{\mu\nu} \left(\frac{i}{2\pi} m \right) \quad (4.58)$$

Scalars, spin 1 x 1, dimension 4:

$$\tilde{T}_{1,1;4D}^{s,t} = k^2 \pi_{\mu\nu} \left(\frac{i}{6\pi^2} \left(\left(-\frac{1}{3} + \frac{L_0}{8} \right) + \frac{m^2}{k^2} \right) + \frac{iS}{6\pi^2} \left(\frac{1}{4} \frac{1}{k} - \frac{m^2}{k^3} \right) \right) \quad (4.59)$$

$$\tilde{T}_{1,1;4D}^{s,nt} = \eta_{\mu\nu} \left(-\frac{iL_1}{8\pi^2} m^2 \right) \quad (4.60)$$

Scalars, spin 1 x 1, dimension 5:

$$\tilde{T}_{1,1;5D}^{s,t} = k^2 \pi_{\mu\nu} \left(\frac{i}{32\pi^2} \left(\frac{1}{4} m + \frac{m^3}{k^2} \right) + \frac{T}{32\pi} \left(\frac{1}{16} k - \frac{1}{2} \frac{m^2}{k} + \frac{m^4}{k^3} \right) \right) \quad (4.61)$$

$$\tilde{T}_{1,1;5D}^{s,nt} = \eta_{\mu\nu} \left(-\frac{i}{12\pi^2} m^3 \right) \quad (4.62)$$

Scalars, spin 1 x 1, dimension 6:

$$\begin{aligned}\tilde{T}_{1,1;6D}^{s,t} = & k^2 \pi_{\mu\nu} \left(\frac{i}{12\pi^3} \left(\left(-\frac{23}{1200} + \frac{L_0}{160} \right) k^2 + \left(\frac{43}{240} - \frac{L_0}{16} \right) m^2 - \frac{1}{5} \frac{m^4}{k^2} \right) + \right. \\ & \left. + \frac{iS}{60\pi^3} \left(\frac{1}{16} k - \frac{1}{2} \frac{m^2}{k} + \frac{m^4}{k^3} \right) \right)\end{aligned}\quad (4.63)$$

$$\tilde{T}_{1,1;6D}^{s,nt} = \eta_{\mu\nu} \left(\frac{iL_2}{64\pi^3} m^4 \right) \quad (4.64)$$

Scalars, spin 1 x 3, dimension 3:

$$\tilde{T}_{1,3;3D}^{s,t} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{4\pi} \left(\frac{5}{4} \frac{m}{k^2} - 3 \frac{m^3}{k^4} \right) + T \left(-\frac{3}{64} \frac{1}{k} + \frac{3}{8} \frac{m^2}{k^3} - \frac{3}{4} \frac{m^4}{k^5} \right) \right) \quad (4.65)$$

$$\tilde{T}_{1,3;3D}^{s,nt} = (k_\nu^2 \eta_{\mu\nu} + k_\mu k_\nu \eta_{\nu\nu}) \left(\frac{i}{2\pi} m \right) + \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi} (-k^2 m + 4m^3) \right) \quad (4.66)$$

Scalars, spin 1 x 3, dimension 4:

$$\tilde{T}_{1,3;4D}^{s,t} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{5\pi^2} \left(\left(\frac{23}{120} - \frac{L_0}{16} \right) - \frac{7}{6} \frac{m^2}{k^2} + 2 \frac{m^4}{k^4} \right) + \frac{iS}{5\pi^2} \left(-\frac{1}{8} \frac{1}{k} + \frac{m^2}{k^3} - 2 \frac{m^4}{k^5} \right) \right) \quad (4.67)$$

$$\tilde{T}_{1,3;4D}^{s,nt} = (k_\nu^2 \eta_{\mu\nu} + k_\mu k_\nu \eta_{\nu\nu}) \left(-\frac{iL_1}{8\pi^2} m^2 \right) + \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{8\pi^2} (L_1 k^2 m^2 - 3L_2 m^4) \right) \quad (4.68)$$

Scalars, spin 1 x 3, dimension 5:

$$\begin{aligned}\tilde{T}_{1,3;5D}^{s,t} = & k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{8\pi^2} \left(-\frac{1}{32} m - \frac{1}{3} \frac{m^3}{k^2} + \frac{1}{2} \frac{m^5}{k^4} \right) + \right. \\ & \left. + \frac{T}{16\pi} \left(-\frac{1}{64} k + \frac{3}{16} \frac{m^2}{k} - \frac{3}{4} \frac{m^4}{k^3} + \frac{m^6}{k^5} \right) \right)\end{aligned}\quad (4.69)$$

$$\tilde{T}_{1,3;5D}^{s,nt} = (k_\nu^2 \eta_{\mu\nu} + k_\mu k_\nu \eta_{\nu\nu}) \left(-\frac{i}{12\pi^2} m^3 \right) + \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{1}{12} k^2 m^3 - \frac{1}{5} m^5 \right) \right) \quad (4.70)$$

Scalars, spin 1 x 3, dimension 6:

$$\begin{aligned}\tilde{T}_{1,3;6D}^{s,t} = & k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{11}{14700} - \frac{L_0}{4480} \right) k^2 + \left(-\frac{337}{33600} + \frac{L_0}{320} \right) m^2 + \frac{1}{42} \frac{m^4}{k^2} - \right. \right. \\ & \left. \left. - \frac{1}{35} \frac{m^6}{k^4} \right) + \frac{iS}{35\pi^3} \left(-\frac{1}{64} k + \frac{3}{16} \frac{m^2}{k} - \frac{3}{4} \frac{m^4}{k^3} + \frac{m^6}{k^5} \right) \right)\end{aligned}\quad (4.71)$$

$$\tilde{T}_{1,3;6D}^{s,nt} = (k_\nu^2 \eta_{\mu\nu} + k_\mu k_\nu \eta_{\nu\nu}) \left(\frac{iL_2}{64\pi^3} m^4 \right) + \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{32\pi^3} \left(-\frac{L_2}{2} k^2 m^4 + L_3 m^6 \right) \right) \quad (4.72)$$

Scalars, spin 1 x 5, dimension 3:

$$\begin{aligned}\tilde{T}_{1,5;3D}^{s,t} = & k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{\pi} \left(-\frac{11}{32} \frac{m}{k^2} + \frac{5}{3} \frac{m^3}{k^4} - \frac{5}{2} \frac{m^5}{k^6} \right) + \right. \\ & \left. + T \left(\frac{5}{128} \frac{1}{k} - \frac{15}{32} \frac{m^2}{k^3} + \frac{15}{8} \frac{m^4}{k^5} - \frac{5}{2} \frac{m^6}{k^7} \right) \right)\end{aligned}\quad (4.73)$$

$$\begin{aligned}\tilde{T}_{1,5;3D}^{s,nt} = & k_\mu k_\nu^3 \eta_{\nu\nu} \left(\frac{i}{\pi} m \right) + k_\nu^4 \eta_{\mu\nu} \left(\frac{i}{2\pi} m \right) + k_\mu k_\nu \eta_{\nu\nu}^2 \left(\frac{i}{\pi} \left(-\frac{1}{2} k^2 m + \frac{10}{3} m^3 \right) \right) + \\ & + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{3\pi} (-3k^2 m + 20m^3) \right) + \\ & + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi} \left(\frac{1}{2} k^4 m - \frac{10}{3} k^2 m^3 + 8m^5 \right) \right)\end{aligned}\quad (4.74)$$

Scalars, spin 1 x 5, dimension 4:

$$\begin{aligned}\tilde{T}_{1,5;4D}^{s,t} = & k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{7\pi^2} \left(\left(-\frac{22}{105} + \frac{L_0}{16} \right) + \frac{29}{15} \frac{m^2}{k^2} - \frac{20}{3} \frac{m^4}{k^4} + 8 \frac{m^6}{k^6} \right) + \right. \\ & \left. + \frac{iS}{7\pi^2} \left(\frac{1}{8} \frac{1}{k} - \frac{3}{2} \frac{m^2}{k^3} + 6 \frac{m^4}{k^5} - 8 \frac{m^6}{k^7} \right) \right)\end{aligned}\quad (4.75)$$

$$\begin{aligned}\tilde{T}_{1,5;4D}^{s,nt} = & k_\mu k_\nu^3 \eta_{\nu\nu} \left(-\frac{iL_1}{4\pi^2} m^2 \right) + k_\nu^4 \eta_{\mu\nu} \left(-\frac{iL_1}{8\pi^2} m^2 \right) + \\ & + k_\mu k_\nu \eta_{\nu\nu}^2 \left(\frac{i}{8\pi^2} (L_1 k^2 m^2 - 5L_2 m^4) \right) + \\ & + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^2} (L_1 k^2 m^2 - 5L_2 m^4) \right) + \\ & + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(-\frac{L_1}{2} k^4 m^2 + \frac{5L_2}{2} k^2 m^4 - 5L_3 m^6 \right) \right)\end{aligned}\quad (4.76)$$

Scalars, spin 1 x 5, dimension 5:

$$\begin{aligned}\tilde{T}_{1,5;5D}^{s,t} = & k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{32\pi^2} \left(\frac{5}{64} m + \frac{73}{48} \frac{m^3}{k^2} - \frac{55}{12} \frac{m^5}{k^4} + 5 \frac{m^7}{k^6} \right) + \right. \\ & \left. + \frac{T}{32\pi} \left(\frac{5}{256} k - \frac{5}{16} \frac{m^2}{k} + \frac{15}{8} \frac{m^4}{k^3} - 5 \frac{m^6}{k^5} + 5 \frac{m^8}{k^7} \right) \right)\end{aligned}\quad (4.77)$$

$$\begin{aligned}\tilde{T}_{1,5;5D}^{s,nt} = & k_\mu k_\nu^3 \eta_{\nu\nu} \left(-\frac{i}{6\pi^2} m^3 \right) + k_\nu^4 \eta_{\mu\nu} \left(-\frac{i}{12\pi^2} m^3 \right) + \\ & + k_\mu k_\nu \eta_{\nu\nu}^2 \left(\frac{i}{3\pi^2} \left(\frac{1}{4} k^2 m^3 - m^5 \right) \right) + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\frac{1}{2} k^2 m^3 - 2m^5 \right) \right) + \\ & + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(-\frac{1}{12} k^4 m^3 + \frac{1}{3} k^2 m^5 - \frac{4}{7} m^7 \right) \right)\end{aligned}\quad (4.78)$$

Scalars, spin 1 x 5, dimension 6:

$$\begin{aligned} \tilde{T}_{1,5;6D}^{s,t} = & k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{7\pi^3} \left(\left(-\frac{563}{181440} + \frac{L_0}{1152} \right) k^2 + \left(\frac{1091}{20160} - \frac{L_0}{64} \right) m^2 - \frac{1}{5} \frac{m^4}{k^2} + \right. \right. \\ & \left. \left. + \frac{13}{27} \frac{m^6}{k^4} - \frac{4}{9} \frac{m^8}{k^6} \right) + \frac{iS}{21\pi^3} \left(\frac{1}{192} k - \frac{1}{12} \frac{m^2}{k} + \frac{1}{2} \frac{m^4}{k^3} - \frac{4}{3} \frac{m^6}{k^5} + \frac{4}{3} \frac{m^8}{k^7} \right) \right) \end{aligned} \quad (4.79)$$

$$\begin{aligned} \tilde{T}_{1,5;6D}^{s,nt} = & k_\mu k_\nu^3 \eta_{\nu\nu} \left(\frac{iL_2}{32\pi^3} m^4 \right) + k_\nu^4 \eta_{\mu\nu} \left(\frac{iL_2}{64\pi^3} m^4 \right) + \\ & + k_\mu k_\nu \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(-\frac{L_2}{2} k^2 m^4 + \frac{5L_3}{3} m^6 \right) \right) + \\ & + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{16\pi^3} \left(-\frac{L_2}{2} k^2 m^4 + \frac{5L_3}{3} m^6 \right) \right) + \\ & + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(\frac{L_2}{2} k^4 m^4 - \frac{5L_3}{3} k^2 m^6 + \frac{5L_4}{2} m^8 \right) \right) \end{aligned} \quad (4.80)$$

Scalars, spin 2 x 2, dimension 3:

$$\begin{aligned} \tilde{T}_{2,2;3D}^{s,t} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi} \left(\frac{3}{4} \frac{m}{k^2} - \frac{m^3}{k^4} \right) + T \left(-\frac{1}{32} \frac{1}{k} + \frac{1}{4} \frac{m^2}{k^3} - \frac{1}{2} \frac{m^4}{k^5} \right) \right) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{4\pi} \left(-\frac{1}{4} \frac{m}{k^2} - \frac{m^3}{k^4} \right) + T \left(-\frac{1}{64} \frac{1}{k} + \frac{1}{8} \frac{m^2}{k^3} - \frac{1}{4} \frac{m^4}{k^5} \right) \right) \end{aligned} \quad (4.81)$$

$$\tilde{T}_{2,2;3D}^{s,nt} = k_\mu k_\nu \eta_{\mu\nu} \left(\frac{i}{\pi} m \right) + \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{2i}{3\pi} m^3 \right) + \eta_{\mu\nu}^2 \left(\frac{i}{\pi} \left(-\frac{1}{2} k^2 m + \frac{4}{3} m^3 \right) \right) \quad (4.82)$$

Scalars, spin 2 x 2, dimension 4:

$$\begin{aligned} \tilde{T}_{2,2;4D}^{s,t} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{3\pi^2} \left(\left(\frac{23}{300} - \frac{L_0}{40} \right) - \left(\frac{41}{120} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \frac{4}{5} \frac{m^4}{k^4} \right) + \right. \\ & \left. + \frac{iS}{15\pi^2} \left(-\frac{1}{4} \frac{1}{k} + 2 \frac{m^2}{k^3} - 4 \frac{m^4}{k^5} \right) \right) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\left(\frac{23}{600} - \frac{L_0}{80} \right) + \left(-\frac{43}{120} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \frac{2}{5} \frac{m^4}{k^4} \right) + \right. \\ & \left. + \frac{iS}{15\pi^2} \left(-\frac{1}{8} \frac{1}{k} + \frac{m^2}{k^3} - 2 \frac{m^4}{k^5} \right) \right) \end{aligned} \quad (4.83)$$

$$\tilde{T}_{2,2;4D}^{s,nt} = k_\mu k_\nu \eta_{\mu\nu} \left(-\frac{iL_1}{4\pi^2} m^2 \right) + \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_2}{8\pi^2} m^4 \right) + \eta_{\mu\nu}^2 \left(\frac{i}{4\pi^2} \left(\frac{L_1}{2} k^2 m^2 - L_2 m^4 \right) \right) \quad (4.84)$$

Scalars, spin 2 x 2, dimension 5:

$$\tilde{T}_{2,2;5D}^{s,t} = k^4 \pi_{\mu\nu}^2 \left(\frac{i}{6\pi^2} \left(-\frac{1}{64} m - \frac{1}{3} \frac{m^3}{k^2} + \frac{1}{4} \frac{m^5}{k^4} \right) + \right.$$

$$\begin{aligned}
& + \frac{T}{8\pi} \left(-\frac{1}{192}k + \frac{1}{16}\frac{m^2}{k} - \frac{1}{4}\frac{m^4}{k^3} + \frac{1}{3}\frac{m^6}{k^5} \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{24\pi^2} \left(-\frac{1}{32}m + \frac{1}{3}\frac{m^3}{k^2} + \frac{1}{2}\frac{m^5}{k^4} \right) + \right. \\
& \left. + \frac{T}{16\pi} \left(-\frac{1}{192}k + \frac{1}{16}\frac{m^2}{k} - \frac{1}{4}\frac{m^4}{k^3} + \frac{1}{3}\frac{m^6}{k^5} \right) \right)
\end{aligned} \tag{4.85}$$

$$\tilde{T}_{2,2;5D}^{\text{s,nt}} = k_\mu k_\nu \eta_{\mu\nu} \left(-\frac{i}{6\pi^2} m^3 \right) + \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{i}{15\pi^2} m^5 \right) + \eta_{\mu\nu}^2 \left(\frac{i}{3\pi^2} \left(\frac{1}{4} k^2 m^3 - \frac{2}{5} m^5 \right) \right) \tag{4.86}$$

Scalars, spin 2 x 2, dimension 6:

$$\begin{aligned}
\tilde{T}_{2,2;6D}^{\text{s,t}} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{3\pi^3} \left(\left(\frac{11}{7350} - \frac{L_0}{2240} \right) k^2 + \left(-\frac{337}{16800} + \frac{L_0}{160} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{65}{2688} + \frac{L_0}{64} \right) \frac{m^4}{k^2} - \frac{2}{35} \frac{m^6}{k^4} \right) + \right. \\
& \left. + \frac{iS}{35\pi^3} \left(-\frac{1}{96}k + \frac{1}{8}\frac{m^2}{k} - \frac{1}{2}\frac{m^4}{k^3} + \frac{2}{3}\frac{m^6}{k^5} \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{3\pi^3} \left(\left(\frac{11}{14700} - \frac{L_0}{4480} \right) k^2 + \left(-\frac{337}{33600} + \frac{L_0}{320} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{127}{2688} - \frac{L_0}{64} \right) \frac{m^4}{k^2} - \frac{1}{35} \frac{m^6}{k^4} \right) + \right. \\
& \left. + \frac{iS}{35\pi^3} \left(-\frac{1}{192}k + \frac{1}{16}\frac{m^2}{k} - \frac{1}{4}\frac{m^4}{k^3} + \frac{1}{3}\frac{m^6}{k^5} \right) \right)
\end{aligned} \tag{4.87}$$

$$\tilde{T}_{2,2;6D}^{\text{s,nt}} = k_\mu k_\nu \eta_{\mu\nu} \left(\frac{iL_2}{32\pi^3} m^4 \right) + \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_3}{96\pi^3} m^6 \right) + \eta_{\mu\nu}^2 \left(\frac{i}{16\pi^3} \left(-\frac{L_2}{4} k^2 m^4 + \frac{L_3}{3} m^6 \right) \right) \tag{4.88}$$

Scalars, spin 2 x 4, dimension 3:

$$\begin{aligned}
\tilde{T}_{2,4;3D}^{\text{s,t}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi} \left(-\frac{3}{8}\frac{m}{k^2} + \frac{4}{3}\frac{m^3}{k^4} - 2\frac{m^5}{k^6} \right) + T \left(\frac{1}{32}\frac{1}{k} - \frac{3}{8}\frac{m^2}{k^3} + \frac{3}{2}\frac{m^4}{k^5} - 2\frac{m^6}{k^7} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi} \left(\frac{1}{32}\frac{m}{k^2} + \frac{1}{3}\frac{m^3}{k^4} - \frac{1}{2}\frac{m^5}{k^6} \right) + \right. \\
& \left. + T \left(\frac{1}{128}\frac{1}{k} - \frac{3}{32}\frac{m^2}{k^3} + \frac{3}{8}\frac{m^4}{k^5} - \frac{1}{2}\frac{m^6}{k^7} \right) \right)
\end{aligned} \tag{4.89}$$

$$\begin{aligned}
\tilde{T}_{2,4;3D}^{\text{s,nt}} = & k_\mu^2 k_\nu^2 \eta_{\nu\nu} \left(\frac{i}{2\pi} m \right) + k_\mu k_\nu^3 \eta_{\mu\nu} \left(\frac{i}{\pi} m \right) + k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{4i}{3\pi} m^3 \right) + k_\mu^2 \eta_{\nu\nu}^2 \left(\frac{2i}{3\pi} m^3 \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{3\pi} (-3k^2 m + 16m^3) \right) + k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{i}{\pi} \left(-\frac{1}{2} k^2 m + \frac{8}{3} m^3 \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + \eta_{\mu\mu}\eta_{\nu\nu}^2 \left(\frac{i}{\pi} \left(-\frac{2}{3}k^2m^3 + \frac{8}{5}m^5 \right) \right) + \\
& + \eta_{\mu\nu}^2\eta_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{1}{2}k^4m - \frac{8}{3}k^2m^3 + \frac{32}{5}m^5 \right) \right)
\end{aligned} \tag{4.90}$$

Scalars, spin 2 x 4, dimension 4:

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{s,t} = & k^6\pi_{\mu\nu}^2\pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{88}{3675} + \frac{L_0}{140} \right) + \left(\frac{823}{4200} + \frac{L_0}{40} \right) \frac{m^2}{k^2} - \frac{16}{21} \frac{m^4}{k^4} + \frac{32}{35} \frac{m^6}{k^6} \right) + \right. \\
& + \frac{iS}{35\pi^2} \left(\frac{1}{2} \frac{1}{k} - 6 \frac{m^2}{k^3} + 24 \frac{m^4}{k^5} - 32 \frac{m^6}{k^7} \right) \Bigg) + \\
& + k^6\pi_{\mu\mu}\pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{22}{3675} + \frac{L_0}{560} \right) + \left(\frac{337}{4200} - \frac{L_0}{40} \right) \frac{m^2}{k^2} - \frac{4}{21} \frac{m^4}{k^4} + \right. \right. \\
& \left. \left. + \frac{8}{35} \frac{m^6}{k^6} \right) + \frac{iS}{35\pi^2} \left(\frac{1}{8} \frac{1}{k} - \frac{3}{2} \frac{m^2}{k^3} + 6 \frac{m^4}{k^5} - 8 \frac{m^6}{k^7} \right) \right)
\end{aligned} \tag{4.91}$$

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{s,nt} = & k_\mu^2k_\nu^2\eta_{\nu\nu} \left(-\frac{iL_1}{8\pi^2}m^2 \right) + k_\mu k_\nu^3\eta_{\mu\nu} \left(-\frac{iL_1}{4\pi^2}m^2 \right) + k_\nu^2\eta_{\mu\mu}\eta_{\nu\nu} \left(-\frac{iL_2}{4\pi^2}m^4 \right) + \\
& + k_\mu^2\eta_{\nu\nu}^2 \left(-\frac{iL_2}{8\pi^2}m^4 \right) + k_\mu k_\nu\eta_{\mu\nu}\eta_{\nu\nu} \left(\frac{i}{4\pi^2} (L_1k^2m^2 - 4L_2m^4) \right) + \\
& + k_\nu^2\eta_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\frac{L_1}{4}k^2m^2 - L_2m^4 \right) \right) + \eta_{\mu\mu}\eta_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(\frac{L_2}{2}k^2m^4 - L_3m^6 \right) \right) + \\
& + \eta_{\mu\nu}^2\eta_{\nu\nu} \left(\frac{i}{2\pi^2} \left(-\frac{L_1}{4}k^4m^2 + L_2k^2m^4 - 2L_3m^6 \right) \right)
\end{aligned} \tag{4.92}$$

Scalars, spin 2 x 4, dimension 5:

$$\begin{aligned}
\tilde{T}_{2,4;5D}^{s,t} = & k^6\pi_{\mu\nu}^2\pi_{\nu\nu} \left(\frac{i}{8\pi^2} \left(\frac{1}{64}m + \frac{7}{16} \frac{m^3}{k^2} - \frac{11}{12} \frac{m^5}{k^4} + \frac{m^7}{k^6} \right) + \right. \\
& + \frac{T}{8\pi} \left(\frac{1}{256}k - \frac{1}{16} \frac{m^2}{k} + \frac{3}{8} \frac{m^4}{k^3} - \frac{m^6}{k^5} + \frac{m^8}{k^7} \right) \Bigg) + \\
& + k^6\pi_{\mu\mu}\pi_{\nu\nu}^2 \left(\frac{i}{32\pi^2} \left(\frac{1}{64}m - \frac{11}{48} \frac{m^3}{k^2} - \frac{11}{12} \frac{m^5}{k^4} + \frac{m^7}{k^6} \right) + \right. \\
& \left. + \frac{T}{32\pi} \left(\frac{1}{256}k - \frac{1}{16} \frac{m^2}{k} + \frac{3}{8} \frac{m^4}{k^3} - \frac{m^6}{k^5} + \frac{m^8}{k^7} \right) \right)
\end{aligned} \tag{4.93}$$

$$\begin{aligned}
\tilde{T}_{2,4;5D}^{s,nt} = & k_\mu^2k_\nu^2\eta_{\nu\nu} \left(-\frac{i}{12\pi^2}m^3 \right) + k_\mu k_\nu^3\eta_{\mu\nu} \left(-\frac{i}{6\pi^2}m^3 \right) + k_\nu^2\eta_{\mu\mu}\eta_{\nu\nu} \left(-\frac{2i}{15\pi^2}m^5 \right) + \\
& + k_\mu^2\eta_{\nu\nu}^2 \left(-\frac{i}{15\pi^2}m^5 \right) + k_\mu k_\nu\eta_{\mu\nu}\eta_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\frac{1}{2}k^2m^3 - \frac{8}{5}m^5 \right) \right) + \\
& + k_\nu^2\eta_{\mu\nu}^2 \left(\frac{i}{3\pi^2} \left(\frac{1}{4}k^2m^3 - \frac{4}{5}m^5 \right) \right) + \eta_{\mu\mu}\eta_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\frac{1}{3}k^2m^5 - \frac{4}{7}m^7 \right) \right) + \\
& + \eta_{\mu\nu}^2\eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{1}{12}k^4m^3 + \frac{4}{15}k^2m^5 - \frac{16}{35}m^7 \right) \right)
\end{aligned} \tag{4.94}$$

Scalars, spin 2 x 4, dimension 6:

$$\begin{aligned}
\tilde{T}_{2,4;6D}^{s,t} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^3} \left(\left(-\frac{563}{317520} + \frac{L_0}{2016} \right) k^2 + \left(\frac{1091}{35280} - \frac{L_0}{112} \right) m^2 - \right. \right. \\
& - \left(\frac{407}{4480} + \frac{L_0}{64} \right) \frac{m^4}{k^2} + \frac{52}{189} \frac{m^6}{k^4} - \frac{16}{63} \frac{m^8}{k^6} \Bigg) + \\
& + \frac{iS}{105\pi^3} \left(\frac{1}{48} k - \frac{1}{3} \frac{m^2}{k} + 2 \frac{m^4}{k^3} - \frac{16}{3} \frac{m^6}{k^5} + \frac{16}{3} \frac{m^8}{k^7} \right) \Bigg) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^3} \left(\left(-\frac{563}{1270080} + \frac{L_0}{8064} \right) k^2 + \left(\frac{1091}{141120} - \frac{L_0}{448} \right) m^2 + \right. \right. \\
& + \left(-\frac{233}{4480} + \frac{L_0}{64} \right) \frac{m^4}{k^2} + \frac{13}{189} \frac{m^6}{k^4} - \frac{4}{63} \frac{m^8}{k^6} \Bigg) + \\
& + \frac{iS}{105\pi^3} \left(\frac{1}{192} k - \frac{1}{12} \frac{m^2}{k} + \frac{1}{2} \frac{m^4}{k^3} - \frac{4}{3} \frac{m^6}{k^5} + \frac{4}{3} \frac{m^8}{k^7} \right) \Bigg) \quad (4.95)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,4;6D}^{s,nt} = & k_\mu^2 k_\nu^2 \eta_{\nu\nu} \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_2}{32\pi^3} m^4 \right) + k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_3}{48\pi^3} m^6 \right) + \\
& + k_\mu^2 \eta_{\nu\nu}^2 \left(\frac{iL_3}{96\pi^3} m^6 \right) + k_\mu k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^3} \left(-\frac{L_2}{8} k^2 m^4 + \frac{L_3}{3} m^6 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{i}{8\pi^3} \left(-\frac{L_2}{8} k^2 m^4 + \frac{L_3}{3} m^6 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(-\frac{L_3}{3} k^2 m^6 + \frac{L_4}{2} m^8 \right) \right) + \\
& + \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{8\pi^3} \left(\frac{L_2}{8} k^4 m^4 - \frac{L_3}{3} k^2 m^6 + \frac{L_4}{2} m^8 \right) \right) \quad (4.96)
\end{aligned}$$

Scalars, spin 3 x 3, dimension 3:

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{s,t} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{\pi} \left(-\frac{7}{16} \frac{m}{k^2} + \frac{2}{3} \frac{m^3}{k^4} - \frac{m^5}{k^6} \right) + T \left(\frac{1}{64} \frac{1}{k} - \frac{3}{16} \frac{m^2}{k^3} + \frac{3}{4} \frac{m^4}{k^5} - \frac{m^6}{k^7} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(\frac{3}{16} \frac{m}{k^2} + 2 \frac{m^3}{k^4} - 3 \frac{m^5}{k^6} \right) + \right. \\
& + T \left(\frac{3}{128} \frac{1}{k} - \frac{9}{32} \frac{m^2}{k^3} + \frac{9}{8} \frac{m^4}{k^5} - \frac{3}{2} \frac{m^6}{k^7} \right) \Bigg) \quad (4.97)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{s,nt} = & k_\mu^2 k_\nu^2 \eta_{\mu\nu} \left(\frac{3i}{2\pi} m \right) + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{2i}{\pi} m^3 \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \left(\frac{i}{2\pi} (-3k^2 m + 8m^3) \right) + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi} (-10k^2 m^3 + 24m^5) \right) + \\
& + \eta_{\mu\nu}^3 \left(\frac{i}{\pi} \left(\frac{1}{2} k^4 m - \frac{4}{3} k^2 m^3 + \frac{16}{5} m^5 \right) \right) \quad (4.98)
\end{aligned}$$

Scalars, spin 3 x 3, dimension 4:

$$\tilde{T}_{3,3;4D}^{s,t} = k^6 \pi_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(\left(-\frac{44}{3675} + \frac{L_0}{280} \right) + \left(\frac{149}{4200} + \frac{3L_0}{40} \right) \frac{m^2}{k^2} - \frac{8}{21} \frac{m^4}{k^4} + \frac{16}{35} \frac{m^6}{k^6} \right) + \right.$$

$$\begin{aligned}
& + \frac{iS}{35\pi^2} \left(\frac{1}{4} \frac{1}{k} - 3 \frac{m^2}{k^3} + 12 \frac{m^4}{k^5} - 16 \frac{m^6}{k^7} \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{22}{1225} + \frac{3L_0}{560} \right) + \left(\frac{337}{1400} - \frac{3L_0}{40} \right) \frac{m^2}{k^2} - \frac{4}{7} \frac{m^4}{k^4} + \right. \right. \\
& \left. \left. + \frac{24}{35} \frac{m^6}{k^6} \right) + \frac{iS}{35\pi^2} \left(\frac{3}{8} \frac{1}{k} - \frac{9}{2} \frac{m^2}{k^3} + 18 \frac{m^4}{k^5} - 24 \frac{m^6}{k^7} \right) \right) \quad (4.99)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;4D}^{s,nt} &= k_\mu^2 k_\nu^2 \eta_{\mu\nu} \left(-\frac{3iL_1}{8\pi^2} m^2 \right) + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{3iL_2}{8\pi^2} m^4 \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \left(\frac{i}{4\pi^2} \left(\frac{3L_1}{2} k^2 m^2 - 3L_2 m^4 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^2} \left(\frac{3L_2}{2} k^2 m^4 - 3L_3 m^6 \right) \right) + \\
& + \eta_{\mu\nu}^3 \left(\frac{i}{2\pi^2} \left(-\frac{L_1}{4} k^4 m^2 + \frac{L_2}{2} k^2 m^4 - L_3 m^6 \right) \right) \quad (4.100)
\end{aligned}$$

Scalars, spin 3 x 3, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,3;5D}^{s,t} &= k^6 \pi_{\mu\nu}^3 \left(\frac{i}{16\pi^2} \left(\frac{1}{64} m + \frac{53}{48} \frac{m^3}{k^2} - \frac{11}{12} \frac{m^5}{k^4} + \frac{m^7}{k^6} \right) + \right. \\
& + \frac{T}{16\pi} \left(\frac{1}{256} k - \frac{1}{16} \frac{m^2}{k} + \frac{3}{8} \frac{m^4}{k^3} - \frac{m^6}{k^5} + \frac{m^8}{k^7} \right) \Bigg) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{32\pi^2} \left(\frac{3}{64} m - \frac{11}{16} \frac{m^3}{k^2} - \frac{11}{4} \frac{m^5}{k^4} + 3 \frac{m^7}{k^6} \right) + \right. \\
& + \frac{T}{32\pi} \left(\frac{3}{256} k - \frac{3}{16} \frac{m^2}{k} + \frac{9}{8} \frac{m^4}{k^3} - 3 \frac{m^6}{k^5} + 3 \frac{m^8}{k^7} \right) \Bigg) \quad (4.101)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;5D}^{s,nt} &= k_\mu^2 k_\nu^2 \eta_{\mu\nu} \left(-\frac{i}{4\pi^2} m^3 \right) + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{i}{5\pi^2} m^5 \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \left(\frac{i}{\pi^2} \left(\frac{1}{4} k^2 m^3 - \frac{2}{5} m^5 \right) \right) + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(k^2 m^5 - \frac{12}{7} m^7 \right) \right) + \\
& + \eta_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(-\frac{1}{12} k^4 m^3 + \frac{2}{15} k^2 m^5 - \frac{8}{35} m^7 \right) \right) \quad (4.102)
\end{aligned}$$

Scalars, spin 3 x 3, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{s,t} &= k^6 \pi_{\mu\nu}^3 \left(\frac{i}{5\pi^3} \left(\left(-\frac{563}{635040} + \frac{L_0}{4032} \right) k^2 + \left(\frac{1091}{70560} - \frac{L_0}{224} \right) m^2 + \right. \right. \\
& + \left(\frac{59}{4480} - \frac{3L_0}{64} \right) \frac{m^4}{k^2} + \frac{26}{189} \frac{m^6}{k^4} - \frac{8}{63} \frac{m^8}{k^6} \Bigg) + \\
& + \frac{iS}{105\pi^3} \left(\frac{1}{96} k - \frac{1}{6} \frac{m^2}{k} + \frac{m^4}{k^3} - \frac{8}{3} \frac{m^6}{k^5} + \frac{8}{3} \frac{m^8}{k^7} \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{5\pi^3} \left(\left(-\frac{563}{423360} + \frac{L_0}{2688} \right) k^2 + \left(\frac{1091}{47040} - \frac{3L_0}{448} \right) m^2 + \right. \right.
\end{aligned}$$

$$\begin{aligned}
& + \left(-\frac{699}{4480} + \frac{3L_0}{64} \right) \frac{m^4}{k^2} + \frac{13}{63} \frac{m^6}{k^4} - \frac{4}{21} \frac{m^8}{k^6} \Big) + \\
& + \frac{iS}{35\pi^3} \left(\frac{1}{192} k - \frac{1}{12} \frac{m^2}{k} + \frac{1}{2} \frac{m^4}{k^3} - \frac{4}{3} \frac{m^6}{k^5} + \frac{4}{3} \frac{m^8}{k^7} \right) \Big)
\end{aligned} \tag{4.103}$$

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{s,nt} &= k_\mu^2 k_\nu^2 \eta_{\mu\nu} \left(\frac{3iL_2}{64\pi^3} m^4 \right) + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_3}{32\pi^3} m^6 \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \left(\frac{i}{16\pi^3} \left(-\frac{3L_2}{4} k^2 m^4 + L_3 m^6 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{32\pi^3} \left(-L_3 k^2 m^6 + \frac{3L_4}{2} m^8 \right) \right) + \\
& + \eta_{\mu\nu}^3 \left(\frac{i}{16\pi^3} \left(\frac{L_2}{4} k^4 m^4 - \frac{L_3}{3} k^2 m^6 + \frac{L_4}{2} m^8 \right) \right)
\end{aligned} \tag{4.104}$$

Scalars, spin 3 x 5, dimension 3:

$$\begin{aligned}
\tilde{T}_{3,5;3D}^{s,t} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{4\pi} \left(\frac{27}{16} \frac{m}{k^2} - \frac{73}{12} \frac{m^3}{k^4} + \frac{55}{3} \frac{m^5}{k^6} - 20 \frac{m^7}{k^8} \right) + \right. \\
& + T \left(-\frac{5}{256} \frac{1}{k} + \frac{5}{16} \frac{m^2}{k^3} - \frac{15}{8} \frac{m^4}{k^5} + 5 \frac{m^6}{k^7} - 5 \frac{m^8}{k^9} \right) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{4\pi} \left(-\frac{15}{64} \frac{m}{k^2} - \frac{73}{16} \frac{m^3}{k^4} + \frac{55}{4} \frac{m^5}{k^6} - 15 \frac{m^7}{k^8} \right) + \right. \\
& + T \left(-\frac{15}{1024} \frac{1}{k} + \frac{15}{64} \frac{m^2}{k^3} - \frac{45}{32} \frac{m^4}{k^5} + \frac{15}{4} \frac{m^6}{k^7} - \frac{15}{4} \frac{m^8}{k^9} \right) \Big)
\end{aligned} \tag{4.105}$$

$$\begin{aligned}
\tilde{T}_{3,5;3D}^{s,nt} &= k_\mu^3 k_\nu^3 \eta_{\nu\nu} \left(\frac{i}{2\pi} m \right) + k_\mu^2 k_\nu^4 \eta_{\mu\nu} \left(\frac{3i}{2\pi} m \right) + k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{4i}{\pi} m^3 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(\frac{2i}{\pi} m^3 \right) + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi} (-3k^2 m + 24m^3) \right) + \\
& + k_\mu k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{2\pi} (-3k^2 m + 16m^3) \right) + \\
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{\pi} (-2k^2 m^3 + 8m^5) \right) + \\
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi} (-4k^2 m^3 + 16m^5) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{2\pi} (3k^4 m - 16k^2 m^3 + 64m^5) \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{\pi} \left(\frac{1}{2} k^4 m - \frac{8}{3} k^2 m^3 + \frac{32}{3} m^5 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{7\pi} (14k^4 m^3 - 56k^2 m^5 + 96m^7) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{\pi} \left(-\frac{1}{2} k^6 m + \frac{8}{3} k^4 m^3 - \frac{32}{3} k^2 m^5 + \frac{128}{7} m^7 \right) \right)
\end{aligned} \tag{4.106}$$

Scalars, spin 3 x 5, dimension 4:

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{s,t} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^2} \left(\left(\frac{563}{5670} - \frac{L_0}{36} \right) - \left(\frac{2159}{2520} + \frac{3L_0}{8} \right) \frac{m^2}{k^2} + \frac{32}{5} \frac{m^4}{k^4} - \frac{416}{27} \frac{m^6}{k^6} + \right. \right. \\
& \left. \left. + \frac{128}{9} \frac{m^8}{k^8} \right) + \frac{iS}{21\pi^2} \left(-\frac{1}{6} \frac{1}{k} + \frac{8}{3} \frac{m^2}{k^3} - 16 \frac{m^4}{k^5} + \frac{128}{3} \frac{m^6}{k^7} - \frac{128}{3} \frac{m^8}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{7\pi^2} \left(\left(\frac{563}{7560} - \frac{L_0}{48} \right) + \left(-\frac{1091}{840} + \frac{3L_0}{8} \right) \frac{m^2}{k^2} + \frac{24}{5} \frac{m^4}{k^4} - \right. \right. \\
& \left. \left. - \frac{104}{9} \frac{m^6}{k^6} + \frac{32}{3} \frac{m^8}{k^8} \right) + \right. \\
& \left. + \frac{iS}{7\pi^2} \left(-\frac{1}{24} \frac{1}{k} + \frac{2}{3} \frac{m^2}{k^3} - 4 \frac{m^4}{k^5} + \frac{32}{3} \frac{m^6}{k^7} - \frac{32}{3} \frac{m^8}{k^9} \right) \right) \quad (4.107)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{s,nt} = & k_\mu^3 k_\nu^3 \eta_{\nu\nu} \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu^2 k_\nu^4 \eta_{\mu\nu} \left(-\frac{3iL_1}{8\pi^2} m^2 \right) + k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(-\frac{3iL_2}{8\pi^2} m^4 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^2} \left(\frac{3L_1}{2} k^2 m^2 - 9L_2 m^4 \right) \right) + \\
& + k_\mu k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\frac{3L_1}{4} k^2 m^2 - 3L_2 m^4 \right) \right) + \\
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{4\pi^2} \left(\frac{3L_2}{2} k^2 m^4 - 5L_3 m^6 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi^2} \left(\frac{3L_2}{2} k^2 m^4 - 5L_3 m^6 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{2\pi^2} \left(-\frac{3L_1}{4} k^4 m^2 + 3L_2 k^2 m^4 - 10L_3 m^6 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(-\frac{L_1}{8} k^4 m^2 + \frac{L_2}{2} k^2 m^4 - \frac{5L_3}{3} m^6 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(-\frac{3L_2}{2} k^4 m^4 + 5L_3 k^2 m^6 - \frac{15L_4}{2} m^8 \right) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{L_1}{8} k^6 m^2 - \frac{L_2}{2} k^4 m^4 + \frac{5L_3}{3} k^2 m^6 - \frac{5L_4}{2} m^8 \right) \right) \quad (4.108)
\end{aligned}$$

Scalars, spin 3 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{s,t} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{1}{1024} m - \frac{25}{384} \frac{m^3}{k^2} + \frac{2}{15} \frac{m^5}{k^4} - \frac{7}{24} \frac{m^7}{k^6} + \frac{1}{4} \frac{m^9}{k^8} \right) + \right. \\
& \left. + \frac{T}{4\pi} \left(-\frac{1}{1024} k + \frac{5}{256} \frac{m^2}{k} - \frac{5}{32} \frac{m^4}{k^3} + \frac{5}{8} \frac{m^6}{k^5} - \frac{5}{4} \frac{m^8}{k^7} + \frac{m^{10}}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi^2} \left(-\frac{3}{2048} m + \frac{7}{256} \frac{m^3}{k^2} + \frac{1}{5} \frac{m^5}{k^4} - \frac{7}{16} \frac{m^7}{k^6} + \frac{3}{8} \frac{m^9}{k^8} \right) + \right. \\
& \left. + \frac{T}{16\pi} \left(-\frac{3}{1024} k + \frac{15}{256} \frac{m^2}{k} - \frac{15}{32} \frac{m^4}{k^3} + \frac{15}{8} \frac{m^6}{k^5} - \frac{15}{4} \frac{m^8}{k^7} + 3 \frac{m^{10}}{k^9} \right) \right) \quad (4.109)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{s,nt} = & k_\mu^3 k_\nu^3 \eta_{\nu\nu} \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu^2 k_\nu^4 \eta_{\mu\nu} \left(-\frac{i}{4\pi^2} m^3 \right) + k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(-\frac{i}{5\pi^2} m^5 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{1}{4} k^2 m^3 - \frac{6}{5} m^5 \right) \right) + k_\mu k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{\pi^2} \left(\frac{1}{4} k^2 m^3 - \frac{4}{5} m^5 \right) \right) + \\
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{\pi^2} \left(\frac{1}{5} k^2 m^5 - \frac{4}{7} m^7 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{2}{5} k^2 m^5 - \frac{8}{7} m^7 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{1}{4} k^4 m^3 + \frac{4}{5} k^2 m^5 - \frac{16}{7} m^7 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{3\pi^2} \left(-\frac{1}{4} k^4 m^3 + \frac{4}{5} k^2 m^5 - \frac{16}{7} m^7 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(-\frac{1}{5} k^4 m^5 + \frac{4}{7} k^2 m^7 - \frac{16}{21} m^9 \right) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\frac{1}{4} k^6 m^3 - \frac{4}{5} k^4 m^5 + \frac{16}{7} k^2 m^7 - \frac{64}{21} m^9 \right) \right)
\end{aligned} \tag{4.110}$$

Scalars, spin 3 x 5, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{s,t} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^3} \left(\left(\frac{1627}{1372140} - \frac{L_0}{3168} \right) k^2 + \left(-\frac{12701}{498960} + \frac{L_0}{144} \right) m^2 + \right. \right. \\
& + \left. \left(\frac{25903}{443520} + \frac{3L_0}{64} \right) \frac{m^4}{k^2} - \frac{692}{1485} \frac{m^6}{k^4} + \frac{256}{297} \frac{m^8}{k^6} - \frac{64}{99} \frac{m^{10}}{k^8} \right) + \\
& + \frac{iS}{693\pi^3} \left(-\frac{1}{16} k + \frac{5}{4} \frac{m^2}{k} - 10 \frac{m^4}{k^3} + 40 \frac{m^6}{k^5} - 80 \frac{m^8}{k^7} + 64 \frac{m^{10}}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{7\pi^3} \left(\left(\frac{1627}{1829520} - \frac{L_0}{4224} \right) k^2 + \left(-\frac{12701}{665280} + \frac{L_0}{192} \right) m^2 + \right. \right. \\
& + \left. \left(\frac{24667}{147840} - \frac{3L_0}{64} \right) \frac{m^4}{k^2} - \frac{173}{495} \frac{m^6}{k^4} + \frac{64}{99} \frac{m^8}{k^6} - \frac{16}{33} \frac{m^{10}}{k^8} \right) + \\
& + \frac{iS}{231\pi^3} \left(-\frac{1}{64} k + \frac{5}{16} \frac{m^2}{k} - \frac{5}{2} \frac{m^4}{k^3} + 10 \frac{m^6}{k^5} - 20 \frac{m^8}{k^7} + 16 \frac{m^{10}}{k^9} \right) \Bigg)
\end{aligned} \tag{4.111}$$

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{s,nt} = & k_\mu^3 k_\nu^3 \eta_{\nu\nu} \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu^2 k_\nu^4 \eta_{\mu\nu} \left(\frac{3iL_2}{64\pi^3} m^4 \right) + k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(\frac{iL_3}{32\pi^3} m^6 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{16\pi^3} \left(-\frac{3L_2}{4} k^2 m^4 + 3L_3 m^6 \right) \right) + \\
& + k_\mu k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{8\pi^3} \left(-\frac{3L_2}{8} k^2 m^4 + L_3 m^6 \right) \right) + \\
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{32\pi^3} \left(-L_3 k^2 m^6 + \frac{5L_4}{2} m^8 \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{16\pi^3} \left(-L_3 k^2 m^6 + \frac{5L_4}{2} m^8 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{8\pi^3} \left(\frac{3L_2}{8} k^4 m^4 - L_3 k^2 m^6 + \frac{5L_4}{2} m^8 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{8\pi^3} \left(\frac{L_2}{8} k^4 m^4 - \frac{L_3}{3} k^2 m^6 + \frac{5L_4}{6} m^8 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(L_3 k^4 m^6 - \frac{5L_4}{2} k^2 m^8 + 3L_5 m^{10} \right) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{8\pi^3} \left(-\frac{L_2}{8} k^6 m^4 + \frac{L_3}{3} k^4 m^6 - \frac{5L_4}{6} k^2 m^8 + L_5 m^{10} \right) \right) \quad (4.112)
\end{aligned}$$

Scalars, spin 4 x 4, dimension 3:

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{s,t} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{2\pi} \left(\frac{15}{16} \frac{m}{k^2} - \frac{5}{12} \frac{m^3}{k^4} + \frac{11}{3} \frac{m^5}{k^6} - 4 \frac{m^7}{k^8} \right) + \right. \\
& \left. + T \left(-\frac{1}{128} \frac{1}{k} + \frac{1}{8} \frac{m^2}{k^3} - \frac{3}{4} \frac{m^4}{k^5} + 2 \frac{m^6}{k^7} - 2 \frac{m^8}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(-\frac{3}{16} \frac{m}{k^2} - \frac{21}{4} \frac{m^3}{k^4} + 11 \frac{m^5}{k^6} - 12 \frac{m^7}{k^8} \right) + \right. \\
& \left. + T \left(-\frac{3}{128} \frac{1}{k} + \frac{3}{8} \frac{m^2}{k^3} - \frac{9}{4} \frac{m^4}{k^5} + 6 \frac{m^6}{k^7} - 6 \frac{m^8}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{4\pi} \left(-\frac{3}{64} \frac{m}{k^2} + \frac{11}{16} \frac{m^3}{k^4} + \frac{11}{4} \frac{m^5}{k^6} - 3 \frac{m^7}{k^8} \right) + \right. \\
& \left. + T \left(-\frac{3}{1024} \frac{1}{k} + \frac{3}{64} \frac{m^2}{k^3} - \frac{9}{32} \frac{m^4}{k^5} + \frac{3}{4} \frac{m^6}{k^7} - \frac{3}{4} \frac{m^8}{k^9} \right) \right) \quad (4.113)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{s,nt} = & k_\mu^3 k_\nu^3 \eta_{\mu\nu} \left(\frac{2i}{\pi} m \right) + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{4i}{\pi} m^3 \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{8i}{\pi} m^3 \right) + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{i}{\pi} (-3k^2 m + 8m^3) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{16i}{5\pi} m^5 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi} (-40k^2 m^3 + 128m^5) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{5\pi} (-20k^2 m^3 + 64m^5) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{3\pi} \left(6k^4 m - 8k^2 m^3 + \frac{256}{5} m^5 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(-8k^2 m^5 + \frac{96}{7} m^7 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{5\pi} \left(20k^4 m^3 - 64k^2 m^5 + \frac{768}{7} m^7 \right) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{\pi} \left(-\frac{1}{2} k^6 m + \frac{2}{3} k^4 m^3 - \frac{64}{15} k^2 m^5 + \frac{256}{35} m^7 \right) \right) \quad (4.114)
\end{aligned}$$

Scalars, spin 4 x 4, dimension 4:

$$\begin{aligned}
\tilde{T}_{4,4;4D}^{s,t} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi^2} \left(\left(\frac{563}{19845} - \frac{L_0}{126} \right) + \left(\frac{2297}{17640} - \frac{27L_0}{56} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(\frac{1339}{560} - \frac{3L_0}{8} \right) \frac{m^4}{k^4} - \frac{832}{189} \frac{m^6}{k^6} + \frac{256}{63} \frac{m^8}{k^8} \Bigg) + \\
& + \frac{iS}{105\pi^2} \left(-\frac{1}{3} \frac{1}{k} + \frac{16}{3} \frac{m^2}{k^3} - 32 \frac{m^4}{k^5} + \frac{256}{3} \frac{m^6}{k^7} - \frac{256}{3} \frac{m^8}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(\frac{563}{6615} - \frac{L_0}{42} \right) + \left(-\frac{1091}{735} + \frac{3L_0}{7} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(\frac{1221}{280} + \frac{3L_0}{4} \right) \frac{m^4}{k^4} - \frac{832}{63} \frac{m^6}{k^6} + \frac{256}{21} \frac{m^8}{k^8} \Bigg) + \\
& + \frac{iS}{35\pi^2} \left(-\frac{1}{3} \frac{1}{k} + \frac{16}{3} \frac{m^2}{k^3} - 32 \frac{m^4}{k^5} + \frac{256}{3} \frac{m^6}{k^7} - \frac{256}{3} \frac{m^8}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(\frac{563}{52920} - \frac{L_0}{336} \right) + \left(-\frac{1091}{5880} + \frac{3L_0}{56} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(\frac{699}{560} - \frac{3L_0}{8} \right) \frac{m^4}{k^4} - \frac{104}{63} \frac{m^6}{k^6} + \frac{32}{21} \frac{m^8}{k^8} \Bigg) + \\
& + \frac{iS}{35\pi^2} \left(-\frac{1}{24} \frac{1}{k} + \frac{2}{3} \frac{m^2}{k^3} - 4 \frac{m^4}{k^5} + \frac{32}{3} \frac{m^6}{k^7} - \frac{32}{3} \frac{m^8}{k^9} \right) \Bigg) \quad (4.115)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;4D}^{s,nt} = & k_\mu^3 k_\nu^3 \eta_{\mu\nu} \left(-\frac{iL_1}{2\pi^2} m^2 \right) + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{3iL_2}{2\pi^2} m^4 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\frac{3L_1}{2} k^2 m^2 - 3L_2 m^4 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{iL_3}{2\pi^2} m^6 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi^2} (3L_2 k^2 m^4 - 8L_3 m^6) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{4\pi^2} (3L_2 k^2 m^4 - 8L_3 m^6) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(-\frac{L_1}{2} k^4 m^2 + \frac{L_2}{2} k^2 m^4 - \frac{8L_3}{3} m^6 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(L_3 k^2 m^6 - \frac{3L_4}{2} m^8 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{4\pi^2} (-3L_2 k^4 m^4 + 8L_3 k^2 m^6 - 12L_4 m^8) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\frac{L_1}{8} k^6 m^2 - \frac{L_2}{8} k^4 m^4 + \frac{2L_3}{3} k^2 m^6 - L_4 m^8 \right) \right) \quad (4.116)
\end{aligned}$$

Scalars, spin 4 x 4, dimension 5:

$$\begin{aligned}
\tilde{T}_{4,4;5D}^{s,t} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi^2} \left(-\frac{1}{512}m - \frac{73}{192} \frac{m^3}{k^2} + \frac{1}{15} \frac{m^5}{k^4} - \frac{7}{12} \frac{m^7}{k^6} + \frac{1}{2} \frac{m^9}{k^8} \right) + \right. \\
& + \frac{T}{2\pi} \left(-\frac{1}{5120}k + \frac{1}{256} \frac{m^2}{k} - \frac{1}{32} \frac{m^4}{k^3} + \frac{1}{8} \frac{m^6}{k^5} - \frac{1}{4} \frac{m^8}{k^7} + \frac{1}{5} \frac{m^{10}}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(-\frac{3}{512}m + \frac{7}{64} \frac{m^3}{k^2} + \frac{6}{5} \frac{m^5}{k^4} - \frac{7}{4} \frac{m^7}{k^6} + \frac{3}{2} \frac{m^9}{k^8} \right) + \right. \\
& + \frac{T}{2\pi} \left(-\frac{3}{5120}k + \frac{3}{256} \frac{m^2}{k} - \frac{3}{32} \frac{m^4}{k^3} + \frac{3}{8} \frac{m^6}{k^5} - \frac{3}{4} \frac{m^8}{k^7} + \frac{3}{5} \frac{m^{10}}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{10\pi^2} \left(-\frac{3}{2048}m + \frac{7}{256} \frac{m^3}{k^2} - \frac{1}{5} \frac{m^5}{k^4} - \frac{7}{16} \frac{m^7}{k^6} + \frac{3}{8} \frac{m^9}{k^8} \right) + \right. \\
& + \frac{T}{16\pi} \left(-\frac{3}{5120}k + \frac{3}{256} \frac{m^2}{k} - \frac{3}{32} \frac{m^4}{k^3} + \frac{3}{8} \frac{m^6}{k^5} - \frac{3}{4} \frac{m^8}{k^7} + \frac{3}{5} \frac{m^{10}}{k^9} \right) \Bigg) \quad (4.117)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;5D}^{s,nt} = & k_\mu^3 k_\nu^3 \eta_{\mu\nu} \left(-\frac{i}{3\pi^2} m^3 \right) + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{4i}{5\pi^2} m^5 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{i}{\pi^2} \left(\frac{1}{2} k^2 m^3 - \frac{4}{5} m^5 \right) \right) + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{8i}{35\pi^2} m^7 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(4k^2 m^5 - \frac{64}{7} m^7 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{5\pi^2} \left(2k^2 m^5 - \frac{32}{7} m^7 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{3\pi^2} \left(-k^4 m^3 + \frac{4}{5} k^2 m^5 - \frac{128}{35} m^7 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{35\pi^2} \left(4k^2 m^7 - \frac{16}{3} m^9 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(-2k^4 m^5 + \frac{32}{7} k^2 m^7 - \frac{128}{21} m^9 \right) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{3\pi^2} \left(\frac{1}{4} k^6 m^3 - \frac{1}{5} k^4 m^5 + \frac{32}{35} k^2 m^7 - \frac{128}{105} m^9 \right) \right) \quad (4.118)
\end{aligned}$$

Scalars, spin 4 x 4, dimension 6:

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{s,t} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi^3} \left(\left(\frac{1627}{4802490} - \frac{L_0}{11088} \right) k^2 + \left(-\frac{12701}{1746360} + \frac{L_0}{504} \right) m^2 + \right. \right. \\
& + \left(-\frac{166489}{3104640} + \frac{27L_0}{448} \right) \frac{m^4}{k^2} + \left(-\frac{126691}{665280} + \frac{L_0}{32} \right) \frac{m^6}{k^4} + \frac{512}{2079} \frac{m^8}{k^6} - \\
& - \frac{128}{693} \frac{m^{10}}{k^8} \Bigg) + \\
& + \frac{iS}{693\pi^3} \left(-\frac{1}{40}k + \frac{1}{2} \frac{m^2}{k} - 4 \frac{m^4}{k^3} + 16 \frac{m^6}{k^5} - 32 \frac{m^8}{k^7} + \frac{128}{5} \frac{m^{10}}{k^9} \right) \Bigg) +
\end{aligned}$$

$$\begin{aligned}
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^3} \left(\left(\frac{1627}{1600830} - \frac{L_0}{3696} \right) k^2 + \left(-\frac{12701}{582120} + \frac{L_0}{168} \right) m^2 + \right. \right. \\
& \quad + \left(\frac{24667}{129360} - \frac{3L_0}{56} \right) \frac{m^4}{k^2} - \left(\frac{31583}{110880} + \frac{L_0}{16} \right) \frac{m^6}{k^4} + \frac{512}{693} \frac{m^8}{k^6} - \\
& \quad \left. \left. - \frac{128}{231} \frac{m^{10}}{k^8} \right) + \right. \\
& \quad + \frac{iS}{231\pi^3} \left(-\frac{1}{40}k + \frac{1}{2} \frac{m^2}{k} - 4 \frac{m^4}{k^3} + 16 \frac{m^6}{k^5} - 32 \frac{m^8}{k^7} + \frac{128}{5} \frac{m^{10}}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^3} \left(\left(\frac{1627}{12806640} - \frac{L_0}{29568} \right) k^2 + \left(-\frac{12701}{4656960} + \frac{L_0}{1344} \right) m^2 + \right. \right. \\
& \quad + \left(\frac{24667}{1034880} - \frac{3L_0}{448} \right) \frac{m^4}{k^2} + \left(-\frac{23777}{221760} + \frac{L_0}{32} \right) \frac{m^6}{k^4} + \frac{64}{693} \frac{m^8}{k^6} - \\
& \quad \left. \left. - \frac{16}{231} \frac{m^{10}}{k^8} \right) + \right. \\
& \quad + \frac{iS}{231\pi^3} \left(-\frac{1}{320}k + \frac{1}{16} \frac{m^2}{k} - \frac{1}{2} \frac{m^4}{k^3} + 2 \frac{m^6}{k^5} - 4 \frac{m^8}{k^7} + \frac{16}{5} \frac{m^{10}}{k^9} \right) \Bigg) \quad (4.119)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{\text{s,nt}} &= k_\mu^3 k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_2}{16\pi^3} m^4 \right) + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_3}{8\pi^3} m^6 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{i}{8\pi^3} \left(-\frac{3L_2}{4} k^2 m^4 + L_3 m^6 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{iL_4}{32\pi^3} m^8 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^3} \left(-\frac{L_3}{2} k^2 m^6 + L_4 m^8 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{8\pi^3} \left(-\frac{L_3}{2} k^2 m^6 + L_4 m^8 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{2\pi^3} \left(\frac{L_2}{8} k^4 m^4 - \frac{L_3}{12} k^2 m^6 + \frac{L_4}{3} m^8 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(-\frac{L_4}{2} k^2 m^8 + \frac{3L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{4\pi^3} \left(\frac{L_3}{4} k^4 m^6 - \frac{L_4}{2} k^2 m^8 + \frac{3L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{4\pi^3} \left(-\frac{L_2}{16} k^6 m^4 + \frac{L_3}{24} k^4 m^6 - \frac{L_4}{6} k^2 m^8 + \frac{L_5}{5} m^{10} \right) \right) \quad (4.120)
\end{aligned}$$

Scalars, spin 5 x 5, dimension 3:

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{\text{s,t}} &= k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi} \left(-\frac{31}{64} \frac{m}{k^2} - \frac{23}{24} \frac{m^3}{k^4} - \frac{32}{15} \frac{m^5}{k^6} + \frac{14}{3} \frac{m^7}{k^8} - 4 \frac{m^9}{k^{10}} \right) + \right. \\
& \quad \left. + T \left(\frac{1}{256} \frac{1}{k} - \frac{5}{64} \frac{m^2}{k^3} + \frac{5}{8} \frac{m^4}{k^5} - \frac{5}{2} \frac{m^6}{k^7} + 5 \frac{m^8}{k^9} - 4 \frac{m^{10}}{k^{11}} \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{5}{64} \frac{m}{k^2} + \frac{125}{24} \frac{m^3}{k^4} - \frac{32}{3} \frac{m^5}{k^6} + \frac{70}{3} \frac{m^7}{k^8} - 20 \frac{m^9}{k^{10}} \right) + \right. \\
& \quad \left. + T \left(\frac{5}{256} \frac{1}{k} - \frac{25}{64} \frac{m^2}{k^3} + \frac{25}{8} \frac{m^4}{k^5} - \frac{25}{2} \frac{m^6}{k^7} + 25 \frac{m^8}{k^9} - 20 \frac{m^{10}}{k^{11}} \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(\frac{15}{256} \frac{m}{k^2} - \frac{35}{32} \frac{m^3}{k^4} - 8 \frac{m^5}{k^6} + \frac{35}{2} \frac{m^7}{k^8} - 15 \frac{m^9}{k^{10}} \right) + \right. \\
& \quad \left. + T \left(\frac{15}{2048} \frac{1}{k} - \frac{75}{512} \frac{m^2}{k^3} + \frac{75}{64} \frac{m^4}{k^5} - \frac{75}{16} \frac{m^6}{k^7} + \frac{75}{8} \frac{m^8}{k^9} - \frac{15}{2} \frac{m^{10}}{k^{11}} \right) \right) \quad (4.121)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{s,nt} = & k_{\mu}^4 k_{\nu}^4 \eta_{\mu\nu} \left(\frac{5i}{2\pi} m \right) + k_{\mu}^3 k_{\nu}^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{20i}{3\pi} m^3 \right) + \\
& + (k_{\mu}^2 k_{\nu}^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_{\mu}^4 k_{\nu}^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{20i}{\pi} m^3 \right) + \\
& + k_{\mu}^3 k_{\nu}^3 \eta_{\mu\nu}^2 \left(\frac{i}{3\pi} (-15k^2 m + 40m^3) \right) + \\
& + (k_{\mu} k_{\nu}^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_{\mu}^3 k_{\nu} \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{16i}{\pi} m^5 \right) + \\
& + (k_{\nu}^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_{\mu}^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{8i}{\pi} m^5 \right) + \\
& + k_{\mu}^2 k_{\nu}^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi} (-20k^2 m^3 + 96m^5) \right) + \\
& + (k_{\mu} k_{\nu}^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_{\mu}^3 k_{\nu} \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{\pi} (-20k^2 m^3 + 64m^5) \right) + \\
& + k_{\mu}^2 k_{\nu}^2 \eta_{\mu\nu}^3 \left(\frac{i}{\pi} (5k^4 m + 64m^5) \right) + k_{\mu} k_{\nu} \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{7\pi} (-56k^2 m^5 + 160m^7) \right) + \\
& + (k_{\nu}^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_{\mu}^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{7\pi} (-112k^2 m^5 + 320m^7) \right) + \\
& + k_{\mu} k_{\nu} \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{7\pi} (140k^4 m^3 - 448k^2 m^5 + 1280m^7) \right) + \\
& + (k_{\nu}^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_{\mu}^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{3\pi} \left(20k^4 m^3 - 64k^2 m^5 + \frac{1280}{7} m^7 \right) \right) + \\
& + k_{\mu} k_{\nu} \eta_{\mu\nu}^4 \left(\frac{i}{\pi} \left(-\frac{5}{2} k^6 m - \frac{10}{3} k^4 m^3 - \frac{64}{3} k^2 m^5 + \frac{1280}{21} m^7 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{7\pi} \left(56k^4 m^5 - 160k^2 m^7 + \frac{640}{3} m^9 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{3\pi} \left(-20k^6 m^3 + 64k^4 m^5 - \frac{1280}{7} k^2 m^7 + \frac{5120}{21} m^9 \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{\pi} \left(\frac{1}{2} k^8 m + \frac{2}{3} k^6 m^3 + \frac{64}{15} k^4 m^5 - \frac{256}{21} k^2 m^7 + \frac{1024}{63} m^9 \right) \right) \quad (4.122)
\end{aligned}$$

Scalars, spin 5 x 5, dimension 4:

$$\tilde{T}_{5,5;4D}^{s,t} = k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{7\pi^2} \left(\left(-\frac{6508}{343035} + \frac{L_0}{198} \right) + \left(-\frac{116687}{249480} + \frac{55L_0}{72} \right) \frac{m^2}{k^2} + \right. \right.$$

$$\begin{aligned}
& + \left(-\frac{270101}{55440} + \frac{15L_0}{8} \right) \frac{m^4}{k^4} + \frac{11072}{1485} \frac{m^6}{k^6} - \frac{4096}{297} \frac{m^8}{k^8} + \frac{1024}{99} \frac{m^{10}}{k^{10}} \Big) + \\
& + \frac{iS}{693\pi^2} \left(\frac{1}{k} - 20 \frac{m^2}{k^3} + 160 \frac{m^4}{k^5} - 640 \frac{m^6}{k^7} + 1280 \frac{m^8}{k^9} - 1024 \frac{m^{10}}{k^{11}} \right) \Big) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^2} \left(\left(-\frac{6508}{68607} + \frac{5L_0}{198} \right) + \left(\frac{12701}{6237} - \frac{5L_0}{9} \right) \frac{m^2}{k^2} - \right. \right. \\
& \quad \left. \left. - \left(\frac{25903}{5544} + \frac{15L_0}{4} \right) \frac{m^4}{k^4} + \frac{11072}{297} \frac{m^6}{k^6} - \frac{20480}{297} \frac{m^8}{k^8} + \frac{5120}{99} \frac{m^{10}}{k^{10}} \right) + \right. \\
& \quad \left. + \frac{iS}{693\pi^2} \left(5 \frac{1}{k} - 100 \frac{m^2}{k^3} + 800 \frac{m^4}{k^5} - 3200 \frac{m^6}{k^7} + 6400 \frac{m^8}{k^9} - 5120 \frac{m^{10}}{k^{11}} \right) \right) \Big) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{7\pi^2} \left(\left(-\frac{1627}{45738} + \frac{5L_0}{528} \right) + \left(\frac{12701}{16632} - \frac{5L_0}{24} \right) \frac{m^2}{k^2} + \right. \right. \\
& \quad \left. \left. + \left(-\frac{24667}{3696} + \frac{15L_0}{8} \right) \frac{m^4}{k^4} + \frac{1384}{99} \frac{m^6}{k^6} - \frac{2560}{99} \frac{m^8}{k^8} + \frac{640}{33} \frac{m^{10}}{k^{10}} \right) + \right. \\
& \quad \left. + \frac{iS}{231\pi^2} \left(\frac{5}{8} \frac{1}{k} - \frac{25}{2} \frac{m^2}{k^3} + 100 \frac{m^4}{k^5} - 400 \frac{m^6}{k^7} + 800 \frac{m^8}{k^9} - 640 \frac{m^{10}}{k^{11}} \right) \right) \Big) \quad (4.123)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{s,nt} = & k_\mu^4 k_\nu^4 \eta_{\mu\nu} \left(-\frac{5iL_1}{8\pi^2} m^2 \right) + k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{5iL_2}{4\pi^2} m^4 \right) + \\
& + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{15iL_2}{4\pi^2} m^4 \right) + \\
& + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\frac{5L_1}{2} k^2 m^2 - 5L_2 m^4 \right) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{5iL_3}{2\pi^2} m^6 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(-\frac{5iL_3}{4\pi^2} m^6 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^2} (15L_2 k^2 m^4 - 60L_3 m^6) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{4\pi^2} (15L_2 k^2 m^4 - 40L_3 m^6) \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{4\pi^2} (-5L_1 k^4 m^2 - 40L_3 m^6) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(5L_3 k^2 m^6 - \frac{25L_4}{2} m^8 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{2\pi^2} \left(5L_3 k^2 m^6 - \frac{25L_4}{2} m^8 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{4\pi^2} (-15L_2 k^4 m^4 + 40L_3 k^2 m^6 - 100L_4 m^8) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{\pi^2} \left(-\frac{5L_2}{4} k^4 m^4 + \frac{10L_3}{3} k^2 m^6 - \frac{25L_4}{3} m^8 \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\frac{5L_1}{8} k^6 m^2 + \frac{5L_2}{8} k^4 m^4 + \frac{10L_3}{3} k^2 m^6 - \frac{25L_4}{3} m^8 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(-5L_3 k^4 m^6 + \frac{25L_4}{2} k^2 m^8 - 15L_5 m^{10} \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{5L_2}{4} k^6 m^4 - \frac{10L_3}{3} k^4 m^6 + \frac{25L_4}{3} k^2 m^8 - 10L_5 m^{10} \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{\pi^2} \left(-\frac{L_1}{8} k^8 m^2 - \frac{L_2}{8} k^6 m^4 - \frac{2L_3}{3} k^4 m^6 + \frac{5L_4}{3} k^2 m^8 - 2L_5 m^{10} \right) \right)
\end{aligned} \tag{4.124}$$

Scalars, spin 5 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{s,t} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{2\pi^2} \left(\frac{1}{3072} m + \frac{367}{2304} \frac{m^3}{k^2} + \frac{97}{480} \frac{m^5}{k^4} + \frac{11}{40} \frac{m^7}{k^6} - \frac{17}{36} \frac{m^9}{k^8} + \frac{1}{3} \frac{m^{11}}{k^{10}} \right) + \right. \\
& + \frac{T}{2\pi} \left(\frac{1}{12288} k - \frac{1}{512} \frac{m^2}{k} + \frac{5}{256} \frac{m^4}{k^3} - \frac{5}{48} \frac{m^6}{k^5} + \frac{5}{16} \frac{m^8}{k^7} - \frac{1}{2} \frac{m^{10}}{k^9} + \right. \\
& \left. \left. + \frac{1}{3} \frac{m^{12}}{k^{11}} \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{2\pi^2} \left(\frac{5}{3072} m - \frac{85}{2304} \frac{m^3}{k^2} - \frac{95}{96} \frac{m^5}{k^4} + \frac{11}{8} \frac{m^7}{k^6} - \frac{85}{36} \frac{m^9}{k^8} + \right. \right. \\
& \left. \left. + \frac{5}{3} \frac{m^{11}}{k^{10}} \right) + \right. \\
& + \frac{T}{2\pi} \left(\frac{5}{12288} k - \frac{5}{512} \frac{m^2}{k} + \frac{25}{256} \frac{m^4}{k^3} - \frac{25}{48} \frac{m^6}{k^5} + \frac{25}{16} \frac{m^8}{k^7} - \frac{5}{2} \frac{m^{10}}{k^9} + \right. \\
& \left. \left. + \frac{5}{3} \frac{m^{12}}{k^{11}} \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{16\pi^2} \left(\frac{5}{1024} m - \frac{85}{768} \frac{m^3}{k^2} + \frac{33}{32} \frac{m^5}{k^4} + \frac{33}{8} \frac{m^7}{k^6} - \frac{85}{12} \frac{m^9}{k^8} + \right. \right. \\
& \left. \left. + 5 \frac{m^{11}}{k^{10}} \right) + \right. \\
& + \frac{T}{16\pi} \left(\frac{5}{4096} k - \frac{15}{512} \frac{m^2}{k} + \frac{75}{256} \frac{m^4}{k^3} - \frac{25}{16} \frac{m^6}{k^5} + \frac{75}{16} \frac{m^8}{k^7} - \frac{15}{2} \frac{m^{10}}{k^9} + \right. \\
& \left. \left. + 5 \frac{m^{12}}{k^{11}} \right) \right)
\end{aligned} \tag{4.125}$$

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{s,nt} = & k_\mu^4 k_\nu^4 \eta_{\mu\nu} \left(-\frac{5i}{12\pi^2} m^3 \right) + k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{2i}{3\pi^2} m^5 \right) + \\
& + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{2i}{\pi^2} m^5 \right) + \\
& + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{3\pi^2} \left(\frac{5}{2} k^2 m^3 - 4m^5 \right) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{8i}{7\pi^2} m^7 \right) +
\end{aligned}$$

$$\begin{aligned}
& + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(-\frac{4i}{7\pi^2} m^7 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{7\pi^2} (14k^2 m^5 - 48m^7) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{7\pi^2} (14k^2 m^5 - 32m^7) \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(-\frac{5}{6} k^4 m^3 - \frac{32}{7} m^7 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{7\pi^2} \left(4k^2 m^7 - \frac{80}{9} m^9 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{7\pi^2} \left(8k^2 m^7 - \frac{160}{9} m^9 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{7\pi^2} \left(-14k^4 m^5 + 32k^2 m^7 - \frac{640}{9} m^9 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{3\pi^2} \left(-2k^4 m^5 + \frac{32}{7} k^2 m^7 - \frac{640}{63} m^9 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{3\pi^2} \left(\frac{5}{4} k^6 m^3 + k^4 m^5 + \frac{32}{7} k^2 m^7 - \frac{640}{63} m^9 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{7\pi^2} \left(-4k^4 m^7 + \frac{80}{9} k^2 m^9 - \frac{320}{33} m^{11} \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{3\pi^2} \left(2k^6 m^5 - \frac{32}{7} k^4 m^7 + \frac{640}{63} k^2 m^9 - \frac{2560}{231} m^{11} \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{3\pi^2} \left(-\frac{1}{4} k^8 m^3 - \frac{1}{5} k^6 m^5 - \frac{32}{35} k^4 m^7 + \frac{128}{63} k^2 m^9 - \frac{512}{231} m^{11} \right) \right) \quad (4.126)
\end{aligned}$$

Scalars, spin 5 x 5, dimension 6:

$$\begin{aligned}
\tilde{T}_{5,5;6D}^{s,t} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{7\pi^3} \left(\left(-\frac{88069}{463783320} + \frac{L_0}{20592} \right) k^2 + \left(\frac{172673}{35675640} - \frac{L_0}{792} \right) m^2 + \right. \right. \\
& + \left(\frac{5813737}{51891840} - \frac{55L_0}{576} \right) \frac{m^4}{k^2} + \left(\frac{3782563}{8648640} - \frac{5L_0}{32} \right) \frac{m^6}{k^4} - \frac{736}{1755} \frac{m^8}{k^6} + \\
& + \frac{2432}{3861} \frac{m^{10}}{k^8} - \frac{512}{1287} \frac{m^{12}}{k^{10}} \Big) + \\
& + \frac{iS}{3003\pi^3} \left(\frac{1}{24} k - \frac{m^2}{k} + 10 \frac{m^4}{k^3} - \frac{160}{3} \frac{m^6}{k^5} + 160 \frac{m^8}{k^7} - 256 \frac{m^{10}}{k^9} + \right. \\
& + \left. \frac{512}{3} \frac{m^{12}}{k^{11}} \right) \Big) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^3} \left(\left(-\frac{88069}{92756664} + \frac{5L_0}{20592} \right) k^2 + \right. \right. \\
& + \left(\frac{172673}{7135128} - \frac{5L_0}{792} \right) m^2 + \left(-\frac{337471}{1297296} + \frac{5L_0}{72} \right) \frac{m^4}{k^2} + \\
& + \left(\frac{157049}{864864} + \frac{5L_0}{16} \right) \frac{m^6}{k^4} - \frac{736}{351} \frac{m^8}{k^6} + \frac{12160}{3861} \frac{m^{10}}{k^8} - \frac{2560}{1287} \frac{m^{12}}{k^{10}} \Big) +
\end{aligned}$$

$$\begin{aligned}
& + \frac{iS}{3003\pi^3} \left(\frac{5}{24}k - 5\frac{m^2}{k} + 50\frac{m^4}{k^3} - \frac{800}{3}\frac{m^6}{k^5} + 800\frac{m^8}{k^7} - 1280\frac{m^{10}}{k^9} + \right. \\
& \quad \left. + \frac{2560}{3}\frac{m^{12}}{k^{11}} \right) + \\
& + k^{10}\pi_{\mu\mu}^2\pi_{\mu\nu}\pi_{\nu\nu}^2 \left(\frac{i}{7\pi^3} \left(\left(-\frac{88069}{247351104} + \frac{5L_0}{54912} \right) k^2 + \right. \right. \\
& \quad + \left(\frac{172673}{19027008} - \frac{5L_0}{2112} \right) m^2 + \left(-\frac{337471}{3459456} + \frac{5L_0}{192} \right) \frac{m^4}{k^2} + \\
& \quad + \left(\frac{328301}{576576} - \frac{5L_0}{32} \right) \frac{m^6}{k^4} - \frac{92}{117}\frac{m^8}{k^6} + \frac{1520}{1287}\frac{m^{10}}{k^8} - \frac{320}{429}\frac{m^{12}}{k^{10}} \Big) + \\
& \quad + \frac{iS}{1001\pi^3} \left(\frac{5}{192}k - \frac{5}{8}\frac{m^2}{k} + \frac{25}{4}\frac{m^4}{k^3} - \frac{100}{3}\frac{m^6}{k^5} + 100\frac{m^8}{k^7} - 160\frac{m^{10}}{k^9} + \right. \\
& \quad \left. + \frac{320}{3}\frac{m^{12}}{k^{11}} \right) \Big) \tag{4.127}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;6D}^{\text{s,nt}} = & k_\mu^4 k_\nu^4 \eta_{\mu\nu} \left(\frac{5iL_2}{64\pi^3} m^4 \right) + k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{5iL_3}{48\pi^3} m^6 \right) + \\
& + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{5iL_3}{16\pi^3} m^6 \right) + \\
& + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{i}{8\pi^3} \left(-\frac{5L_2}{4} k^2 m^4 + \frac{5L_3}{3} m^6 \right) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{5iL_4}{32\pi^3} m^8 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{5iL_4}{64\pi^3} m^8 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{16\pi^3} (-5L_3 k^2 m^6 + 15L_4 m^8) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{8\pi^3} \left(-\frac{5L_3}{2} k^2 m^6 + 5L_4 m^8 \right) \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{8\pi^3} \left(\frac{5L_2}{4} k^4 m^4 + 5L_4 m^8 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(-\frac{5L_4}{2} k^2 m^8 + 5L_5 m^{10} \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{16\pi^3} \left(-\frac{5L_4}{2} k^2 m^8 + 5L_5 m^{10} \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{4\pi^3} \left(\frac{5L_3}{4} k^4 m^6 - \frac{5L_4}{2} k^2 m^8 + 5L_5 m^{10} \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{12\pi^3} \left(\frac{5L_3}{4} k^4 m^6 - \frac{5L_4}{2} k^2 m^8 + 5L_5 m^{10} \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{4\pi^3} \left(-\frac{5L_2}{16} k^6 m^4 - \frac{5L_3}{24} k^4 m^6 - \frac{5L_4}{6} k^2 m^8 + \frac{5L_5}{3} m^{10} \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{32\pi^3} \left(\frac{5L_4}{2} k^4 m^8 - 5L_5 k^2 m^{10} + 5L_6 m^{12} \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + \eta_{\mu\mu}\eta_{\mu\nu}^3\eta_{\nu\nu} \left(\frac{i}{12\pi^3} \left(-\frac{5L_3}{4}k^6m^6 + \frac{5L_4}{2}k^4m^8 - 5L_5k^2m^{10} + 5L_6m^{12} \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{4\pi^3} \left(\frac{L_2}{16}k^8m^4 + \frac{L_3}{24}k^6m^6 + \frac{L_4}{6}k^4m^8 - \frac{L_5}{3}k^2m^{10} + \frac{L_6}{3}m^{12} \right) \right) \quad (4.128)
\end{aligned}$$

4.3.2 Expansions in UV and IR for scalars

Scalars, spin 0 x 0, dimension 3:

$$\tilde{T}_{0,0;3D}^{s,UV} = -\frac{1}{8}\frac{1}{k} + \frac{i}{2\pi}\frac{m}{k^2} + \frac{2i}{3\pi}\frac{m^3}{k^4} + \frac{8i}{5\pi}\frac{m^5}{k^6} + \frac{32i}{7\pi}\frac{m^7}{k^8} + \frac{128i}{9\pi}\frac{m^9}{k^{10}} + \frac{512i}{11\pi}\frac{m^{11}}{k^{12}} + \dots \quad (4.129)$$

$$\tilde{T}_{0,0;3D}^{s,IR} = \frac{i}{8\pi} \left(\frac{1}{m} + \frac{1}{12}\frac{k^2}{m^3} + \frac{1}{80}\frac{k^4}{m^5} + \frac{1}{448}\frac{k^6}{m^7} + \frac{1}{2304}\frac{k^8}{m^9} + \frac{1}{11264}\frac{k^{10}}{m^{11}} + \dots \right) \quad (4.130)$$

$$\tilde{T}_{0,0;3D}^{s,UV-IR} = \dots (\text{i.e. no overlap}) \quad (4.131)$$

Scalars, spin 0 x 0, dimension 4:

$$\begin{aligned}
\tilde{T}_{0,0;4D}^{s,UV} = & \frac{i}{4\pi^2} \left(\left(\frac{1}{2} - \frac{P}{4} \right) + \left(\frac{1}{2} + \frac{K}{2} \right) \frac{m^2}{k^2} + \left(-\frac{1}{4} + \frac{K}{2} \right) \frac{m^4}{k^4} + \left(-\frac{5}{6} + K \right) \frac{m^6}{k^6} + \right. \\
& + \left(-\frac{59}{24} + \frac{5K}{2} \right) \frac{m^8}{k^8} + \left(-\frac{449}{60} + 7K \right) \frac{m^{10}}{k^{10}} + \left(-\frac{1417}{60} + 21K \right) \frac{m^{12}}{k^{12}} + \\
& \left. + \dots \right) \quad (4.132)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{0,0;4D}^{s,IR} = & \frac{i}{16\pi^2} \left(-L_0 + \frac{1}{6}\frac{k^2}{m^2} + \frac{1}{60}\frac{k^4}{m^4} + \frac{1}{420}\frac{k^6}{m^6} + \frac{1}{2520}\frac{k^8}{m^8} + \frac{1}{13860}\frac{k^{10}}{m^{10}} + \right. \\
& \left. + \frac{1}{72072}\frac{k^{12}}{m^{12}} + \dots \right) \quad (4.133)
\end{aligned}$$

$$\tilde{T}_{0,0;4D}^{s,UV-IR} = \frac{i}{8\pi^2} \left(1 - \frac{K}{2} \right) + \dots \quad (4.134)$$

Scalars, spin 0 x 0, dimension 5:

$$\tilde{T}_{0,0;5D}^{s,UV} = \frac{1}{\pi^2} \left(-\frac{\pi}{128}k + \frac{\pi}{32}\frac{m^2}{k} - \frac{i}{12}\frac{m^3}{k^2} - \frac{i}{15}\frac{m^5}{k^4} - \frac{4i}{35}\frac{m^7}{k^6} - \frac{16i}{63}\frac{m^9}{k^8} - \frac{64i}{99}\frac{m^{11}}{k^{10}} + \dots \right) \quad (4.135)$$

$$\begin{aligned}
\tilde{T}_{0,0;5D}^{s,IR} = & \frac{i}{16\pi^2} \left(-m + \frac{1}{12}\frac{k^2}{m} + \frac{1}{240}\frac{k^4}{m^3} + \frac{1}{2240}\frac{k^6}{m^5} + \frac{1}{16128}\frac{k^8}{m^7} + \frac{1}{101376}\frac{k^{10}}{m^9} + \right. \\
& \left. + \frac{1}{585728}\frac{k^{12}}{m^{11}} + \dots \right) \quad (4.136)
\end{aligned}$$

$$\tilde{T}_{0,0;5D}^{s,UV-IR} = \dots (\text{i.e. no overlap}) \quad (4.137)$$

Scalars, spin 0 x 0, dimension 6:

$$\begin{aligned}\tilde{T}_{0,0;6D}^{\text{s,UV}} = & \frac{i}{16\pi^3} \left(\left(\frac{1}{9} - \frac{P}{24} \right) k^2 + \left(-\frac{1}{2} + \frac{P}{4} \right) m^2 - \left(\frac{3}{8} + \frac{K}{4} \right) \frac{m^4}{k^2} + \left(\frac{1}{36} - \frac{K}{6} \right) \frac{m^6}{k^4} + \right. \\ & \left. + \left(\frac{7}{48} - \frac{K}{4} \right) \frac{m^8}{k^6} + \left(\frac{47}{120} - \frac{K}{2} \right) \frac{m^{10}}{k^8} + \left(\frac{379}{360} - \frac{7K}{6} \right) \frac{m^{12}}{k^{10}} + \dots \right) \quad (4.138)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{0,0;6D}^{\text{s,IR}} = & \frac{i}{64\pi^3} \left((-1 + L_0) m^2 - \frac{L_0}{6} k^2 + \frac{1}{60} \frac{k^4}{m^2} + \frac{1}{840} \frac{k^6}{m^4} + \frac{1}{7560} \frac{k^8}{m^6} + \frac{1}{55440} \frac{k^{10}}{m^8} + \right. \\ & \left. + \frac{1}{360360} \frac{k^{12}}{m^{10}} + \frac{1}{2162160} \frac{k^{14}}{m^{12}} + \dots \right) \quad (4.139)\end{aligned}$$

$$\tilde{T}_{0,0;6D}^{\text{s,UV-IR}} = \frac{i}{16\pi^3} \left(\left(\frac{1}{9} - \frac{K}{24} \right) k^2 + \left(-\frac{1}{4} + \frac{K}{4} \right) m^2 \right) + \dots \quad (4.140)$$

Scalars, spin 0 x 2, dimension 3:

$$\begin{aligned}\tilde{T}_{0,2;3D}^{\text{s,t,UV}} = & k^2 \pi_{\nu\nu} \left(\frac{1}{16} \frac{1}{k} - \frac{i}{2\pi} \frac{m}{k^2} - \frac{1}{4} \frac{m^2}{k^3} + \frac{2i}{3\pi} \frac{m^3}{k^4} + \frac{8i}{15\pi} \frac{m^5}{k^6} + \frac{32i}{35\pi} \frac{m^7}{k^8} + \frac{128i}{63\pi} \frac{m^9}{k^{10}} + \right. \\ & \left. + \frac{512i}{99\pi} \frac{m^{11}}{k^{12}} + \dots \right) \quad (4.141)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{0,2;3D}^{\text{s,t,IR}} = & k^2 \pi_{\nu\nu} \left(\frac{i}{8\pi} \left(-\frac{1}{3} \frac{1}{m} - \frac{1}{60} \frac{k^2}{m^3} - \frac{1}{560} \frac{k^4}{m^5} - \frac{1}{4032} \frac{k^6}{m^7} - \frac{1}{25344} \frac{k^8}{m^9} - \frac{1}{146432} \frac{k^{10}}{m^{11}} + \right. \right. \\ & \left. \left. + \dots \right) \right) \quad (4.142)\end{aligned}$$

$$\tilde{T}_{0,2;3D}^{\text{s,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.143)$$

Scalars, spin 0 x 2, dimension 4:

$$\begin{aligned}\tilde{T}_{0,2;4D}^{\text{s,t,UV}} = & k^2 \pi_{\nu\nu} \left(\frac{i}{2\pi^2} \left(\left(-\frac{1}{9} + \frac{P}{24} \right) + \left(\frac{1}{4} - \frac{K}{4} \right) \frac{m^2}{k^2} + \left(\frac{3}{8} + \frac{K}{4} \right) \frac{m^4}{k^4} + \right. \right. \\ & + \left(-\frac{1}{36} + \frac{K}{6} \right) \frac{m^6}{k^6} + \left(-\frac{7}{48} + \frac{K}{4} \right) \frac{m^8}{k^8} + \left(-\frac{47}{120} + \frac{K}{2} \right) \frac{m^{10}}{k^{10}} + \\ & \left. \left. + \left(-\frac{379}{360} + \frac{7K}{6} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \quad (4.144)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{0,2;4D}^{\text{s,t,IR}} = & k^2 \pi_{\nu\nu} \left(\frac{i}{48\pi^2} \left(L_0 - \frac{1}{10} \frac{k^2}{m^2} - \frac{1}{140} \frac{k^4}{m^4} - \frac{1}{1260} \frac{k^6}{m^6} - \frac{1}{9240} \frac{k^8}{m^8} - \frac{1}{60060} \frac{k^{10}}{m^{10}} - \right. \right. \\ & \left. \left. - \frac{1}{360360} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.145)\end{aligned}$$

$$\tilde{T}_{0,2;4D}^{\text{s,UV-IR}} = k^2 \pi_{\nu\nu} \frac{i}{6\pi^2} \left(-\frac{1}{3} + \frac{K}{8} \right) + \dots \quad (4.146)$$

Scalars, spin 0 x 2, dimension 5:

$$\tilde{T}_{0,2;5D}^{s,t,UV} = k^2 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{\pi}{512} k - \frac{\pi}{64} \frac{m^2}{k} + \frac{i}{12} \frac{m^3}{k^2} + \frac{\pi}{32} \frac{m^4}{k^3} - \frac{i}{15} \frac{m^5}{k^4} - \frac{4i}{105} \frac{m^7}{k^6} - \frac{16i}{315} \frac{m^9}{k^8} - \frac{64i}{693} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.147)$$

$$\tilde{T}_{0,2;5D}^{s,t,IR} = k^2 \pi_{\nu\nu} \left(\frac{i}{48\pi^2} \left(m - \frac{1}{20} \frac{k^2}{m} - \frac{1}{560} \frac{k^4}{m^3} - \frac{1}{6720} \frac{k^6}{m^5} - \frac{1}{59136} \frac{k^8}{m^7} - \frac{1}{439296} \frac{k^{10}}{m^9} - \frac{1}{2928640} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.148)$$

$$\tilde{T}_{0,2;5D}^{s,UV-IR} = \dots \text{(i.e. no overlap)} \quad (4.149)$$

Scalars, spin 0 x 2, dimension 6:

$$\tilde{T}_{0,2;6D}^{s,t,UV} = k^2 \pi_{\nu\nu} \left(\frac{i}{8\pi^3} \left(\left(-\frac{23}{1800} + \frac{P}{240} \right) k^2 + \left(\frac{1}{9} - \frac{P}{24} \right) m^2 + \left(-\frac{1}{16} + \frac{K}{8} \right) \frac{m^4}{k^2} - \left(\frac{11}{72} + \frac{K}{12} \right) \frac{m^6}{k^4} - \left(\frac{1}{288} + \frac{K}{24} \right) \frac{m^8}{k^6} + \left(\frac{23}{1200} - \frac{K}{20} \right) \frac{m^{10}}{k^8} + \left(\frac{37}{720} - \frac{K}{12} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \quad (4.150)$$

$$\tilde{T}_{0,2;6D}^{s,t,IR} = k^2 \pi_{\nu\nu} \left(\frac{i}{192\pi^3} \left((1 - L_0) m^2 + \frac{L_0}{10} k^2 - \frac{1}{140} \frac{k^4}{m^2} - \frac{1}{2520} \frac{k^6}{m^4} - \frac{1}{27720} \frac{k^8}{m^6} - \frac{1}{240240} \frac{k^{10}}{m^8} - \frac{1}{1801800} \frac{k^{12}}{m^{10}} - \frac{1}{12252240} \frac{k^{14}}{m^{12}} + \dots \right) \right) \quad (4.151)$$

$$\tilde{T}_{0,2;6D}^{s,UV-IR} = k^2 \pi_{\nu\nu} \left(\frac{i}{192\pi^3} \left(\left(-\frac{23}{75} + \frac{K}{10} \right) k^2 + \left(\frac{5}{3} - K \right) m^2 \right) \right) + \dots \quad (4.152)$$

Scalars, spin 0 x 4, dimension 3:

$$\tilde{T}_{0,4;3D}^{s,t,UV} = k^4 \pi_{\nu\nu}^2 \left(-\frac{3}{64} \frac{1}{k} + \frac{i}{2\pi} \frac{m}{k^2} + \frac{3}{8} \frac{m^2}{k^3} - \frac{2i}{\pi} \frac{m^3}{k^4} - \frac{3}{4} \frac{m^4}{k^5} + \frac{8i}{5\pi} \frac{m^5}{k^6} + \frac{32i}{35\pi} \frac{m^7}{k^8} + \frac{128i}{105\pi} \frac{m^9}{k^{10}} + \frac{512i}{231\pi} \frac{m^{11}}{k^{12}} + \dots \right) \quad (4.153)$$

$$\tilde{T}_{0,4;3D}^{s,t,IR} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{8\pi} \left(\frac{1}{5} \frac{1}{m} + \frac{1}{140} \frac{k^2}{m^3} + \frac{1}{1680} \frac{k^4}{m^5} + \frac{1}{14784} \frac{k^6}{m^7} + \frac{1}{109824} \frac{k^8}{m^9} + \frac{1}{732160} \frac{k^{10}}{m^{11}} + \dots \right) \right) \quad (4.154)$$

$$\tilde{T}_{0,4;3D}^{s,UV-IR} = \dots \text{(i.e. no overlap)} \quad (4.155)$$

Scalars, spin 0 x 4, dimension 4:

$$\begin{aligned}\tilde{T}_{0,4;4D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu}^2 & \left(\frac{i}{4\pi^2} \left(\left(\frac{23}{150} - \frac{P}{20} \right) + \left(-\frac{5}{6} + \frac{K}{2} \right) \frac{m^2}{k^2} + \left(\frac{3}{4} - \frac{3K}{2} \right) \frac{m^4}{k^4} + \right. \right. \\ & + \left(\frac{11}{6} + K \right) \frac{m^6}{k^6} + \left(\frac{1}{24} + \frac{K}{2} \right) \frac{m^8}{k^8} + \left(-\frac{23}{100} + \frac{3K}{5} \right) \frac{m^{10}}{k^{10}} + \\ & \left. \left. + \left(-\frac{37}{60} + K \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \quad (4.156)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{0,4;4D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu}^2 & \left(\frac{i}{80\pi^2} \left(-L_0 + \frac{1}{14} \frac{k^2}{m^2} + \frac{1}{252} \frac{k^4}{m^4} + \frac{1}{2772} \frac{k^6}{m^6} + \frac{1}{24024} \frac{k^8}{m^8} + \right. \right. \\ & \left. \left. + \frac{1}{180180} \frac{k^{10}}{m^{10}} + \frac{1}{1225224} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.157)\end{aligned}$$

$$\tilde{T}_{0,4;4D}^{\text{s,UV-IR}} = k^4 \pi_{\nu\nu}^2 \frac{i}{40\pi^2} \left(\frac{23}{15} - \frac{K}{2} \right) + \dots \quad (4.158)$$

Scalars, spin 0 x 4, dimension 5:

$$\begin{aligned}\tilde{T}_{0,4;5D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu}^2 & \left(\frac{1}{\pi^2} \left(-\frac{\pi}{1024} k + \frac{3\pi}{256} \frac{m^2}{k} - \frac{i}{12} \frac{m^3}{k^2} - \frac{3\pi}{64} \frac{m^4}{k^3} + \frac{i}{5} \frac{m^5}{k^4} + \frac{\pi}{16} \frac{m^6}{k^5} - \frac{4i}{35} \frac{m^7}{k^6} - \right. \right. \\ & \left. \left. - \frac{16i}{315} \frac{m^9}{k^8} - \frac{64i}{1155} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.159)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{0,4;5D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu}^2 & \left(\frac{i}{16\pi^2} \left(-\frac{1}{5} m + \frac{1}{140} \frac{k^2}{m} + \frac{1}{5040} \frac{k^4}{m^3} + \frac{1}{73920} \frac{k^6}{m^5} + \frac{1}{768768} \frac{k^8}{m^7} + \right. \right. \\ & \left. \left. + \frac{1}{6589440} \frac{k^{10}}{m^9} + \frac{1}{49786880} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.160)\end{aligned}$$

$$\tilde{T}_{0,4;5D}^{\text{s,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.161)$$

Scalars, spin 0 x 4, dimension 6:

$$\begin{aligned}\tilde{T}_{0,4;6D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu}^2 & \left(\frac{i}{4\pi^3} \left(\left(\frac{11}{3675} - \frac{P}{1120} \right) k^2 + \left(-\frac{23}{600} + \frac{P}{80} \right) m^2 + \left(\frac{7}{96} - \frac{K}{16} \right) \frac{m^4}{k^2} + \right. \right. \\ & + \left(-\frac{1}{48} + \frac{K}{8} \right) \frac{m^6}{k^4} - \left(\frac{25}{192} + \frac{K}{16} \right) \frac{m^8}{k^6} - \left(\frac{17}{2400} + \frac{K}{40} \right) \frac{m^{10}}{k^8} + \\ & \left. \left. + \left(\frac{13}{2400} - \frac{K}{40} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \quad (4.162)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{0,4;6D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu}^2 & \left(\frac{i}{320\pi^3} \left((-1 + L_0) m^2 - \frac{L_0}{14} k^2 + \frac{1}{252} \frac{k^4}{m^2} + \frac{1}{5544} \frac{k^6}{m^4} + \frac{1}{72072} \frac{k^8}{m^6} + \right. \right. \\ & \left. \left. + \frac{1}{720720} \frac{k^{10}}{m^8} + \frac{1}{6126120} \frac{k^{12}}{m^{10}} + \frac{1}{46558512} \frac{k^{14}}{m^{12}} + \dots \right) \right) \quad (4.163)\end{aligned}$$

$$\tilde{T}_{0,4;6D}^{\text{s,UV-IR}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^3} \left(\left(\frac{11}{735} - \frac{K}{224} \right) k^2 + \left(-\frac{31}{240} + \frac{K}{16} \right) m^2 \right) \right) + \dots \quad (4.164)$$

Scalars, spin 1 x 1, dimension 3:

$$\begin{aligned} \tilde{T}_{1,1;3D}^{\text{s,t,UV}} = k^2 \pi_{\mu\nu} & \left(\frac{1}{16} \frac{1}{k} - \frac{i}{2\pi} \frac{m}{k^2} - \frac{1}{4} \frac{m^2}{k^3} + \frac{2i}{3\pi} \frac{m^3}{k^4} + \frac{8i}{15\pi} \frac{m^5}{k^6} + \frac{32i}{35\pi} \frac{m^7}{k^8} + \frac{128i}{63\pi} \frac{m^9}{k^{10}} + \right. \\ & \left. + \frac{512i}{99\pi} \frac{m^{11}}{k^{12}} + \dots \right) \end{aligned} \quad (4.165)$$

$$\begin{aligned} \tilde{T}_{1,1;3D}^{\text{s,t,IR}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{8\pi} \left(-\frac{1}{3} \frac{1}{m} - \frac{1}{60} \frac{k^2}{m^3} - \frac{1}{560} \frac{k^4}{m^5} - \frac{1}{4032} \frac{k^6}{m^7} - \frac{1}{25344} \frac{k^8}{m^9} - \frac{1}{146432} \frac{k^{10}}{m^{11}} + \right. \right. \\ & \left. \left. + \dots \right) \right) \end{aligned} \quad (4.166)$$

$$\tilde{T}_{1,1;3D}^{\text{s,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.167)$$

Scalars, spin 1 x 1, dimension 4:

$$\begin{aligned} \tilde{T}_{1,1;4D}^{\text{s,t,UV}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{2\pi^2} \left(\left(-\frac{1}{9} + \frac{P}{24} \right) + \left(\frac{1}{4} - \frac{K}{4} \right) \frac{m^2}{k^2} + \left(\frac{3}{8} + \frac{K}{4} \right) \frac{m^4}{k^4} + \right. \right. \\ & + \left(-\frac{1}{36} + \frac{K}{6} \right) \frac{m^6}{k^6} + \left(-\frac{7}{48} + \frac{K}{4} \right) \frac{m^8}{k^8} + \left(-\frac{47}{120} + \frac{K}{2} \right) \frac{m^{10}}{k^{10}} + \\ & \left. \left. + \left(-\frac{379}{360} + \frac{7K}{6} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \end{aligned} \quad (4.168)$$

$$\begin{aligned} \tilde{T}_{1,1;4D}^{\text{s,t,IR}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{48\pi^2} \left(L_0 - \frac{1}{10} \frac{k^2}{m^2} - \frac{1}{140} \frac{k^4}{m^4} - \frac{1}{1260} \frac{k^6}{m^6} - \frac{1}{9240} \frac{k^8}{m^8} - \frac{1}{60060} \frac{k^{10}}{m^{10}} - \right. \right. \\ & \left. \left. - \frac{1}{360360} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.169)$$

$$\tilde{T}_{1,1;4D}^{\text{s,UV-IR}} = k^2 \pi_{\mu\nu} \frac{i}{6\pi^2} \left(-\frac{1}{3} + \frac{K}{8} \right) + \dots \quad (4.170)$$

Scalars, spin 1 x 1, dimension 5:

$$\begin{aligned} \tilde{T}_{1,1;5D}^{\text{s,t,UV}} = k^2 \pi_{\mu\nu} & \left(\frac{1}{\pi^2} \left(\frac{\pi}{512} k - \frac{\pi}{64} \frac{m^2}{k} + \frac{i}{12} \frac{m^3}{k^2} + \frac{\pi}{32} \frac{m^4}{k^3} - \frac{i}{15} \frac{m^5}{k^4} - \frac{4i}{105} \frac{m^7}{k^6} - \frac{16i}{315} \frac{m^9}{k^8} - \right. \right. \\ & \left. \left. - \frac{64i}{693} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.171)$$

$$\begin{aligned} \tilde{T}_{1,1;5D}^{\text{s,t,IR}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{48\pi^2} \left(m - \frac{1}{20} \frac{k^2}{m} - \frac{1}{560} \frac{k^4}{m^3} - \frac{1}{6720} \frac{k^6}{m^5} - \frac{1}{59136} \frac{k^8}{m^7} - \frac{1}{439296} \frac{k^{10}}{m^9} - \right. \right. \\ & \left. \left. - \frac{1}{2928640} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.172)$$

$$\tilde{T}_{1,1;5D}^{\text{s,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.173)$$

Scalars, spin 1 x 1, dimension 6:

$$\begin{aligned} \tilde{T}_{1,1;6D}^{\text{s,t,UV}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{8\pi^3} \left(\left(-\frac{23}{1800} + \frac{P}{240} \right) k^2 + \left(\frac{1}{9} - \frac{P}{24} \right) m^2 + \left(-\frac{1}{16} + \frac{K}{8} \right) \frac{m^4}{k^2} - \right. \right. \\ & - \left(\frac{11}{72} + \frac{K}{12} \right) \frac{m^6}{k^4} - \left(\frac{1}{288} + \frac{K}{24} \right) \frac{m^8}{k^6} + \left(\frac{23}{1200} - \frac{K}{20} \right) \frac{m^{10}}{k^8} + \\ & \left. \left. + \left(\frac{37}{720} - \frac{K}{12} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.174)$$

$$\begin{aligned} \tilde{T}_{1,1;6D}^{\text{s,t,IR}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{192\pi^3} \left((1 - L_0) m^2 + \frac{L_0}{10} k^2 - \frac{1}{140} \frac{k^4}{m^2} - \frac{1}{2520} \frac{k^6}{m^4} - \frac{1}{27720} \frac{k^8}{m^6} - \right. \right. \\ & - \left. \frac{1}{240240} \frac{k^{10}}{m^8} - \frac{1}{1801800} \frac{k^{12}}{m^{10}} - \frac{1}{12252240} \frac{k^{14}}{m^{12}} + \dots \right) \end{aligned} \quad (4.175)$$

$$\tilde{T}_{1,1;6D}^{\text{s,UV-IR}} = k^2 \pi_{\mu\nu} \left(\frac{i}{192\pi^3} \left(\left(-\frac{23}{75} + \frac{K}{10} \right) k^2 + \left(\frac{5}{3} - K \right) m^2 \right) \right) + \dots \quad (4.176)$$

Scalars, spin 1 x 3, dimension 3:

$$\begin{aligned} \tilde{T}_{1,3;3D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} & \left(-\frac{3}{64} \frac{1}{k} + \frac{i}{2\pi} \frac{m}{k^2} + \frac{3}{8} \frac{m^2}{k^3} - \frac{2i}{\pi} \frac{m^3}{k^4} - \frac{3}{4} \frac{m^4}{k^5} + \frac{8i}{5\pi} \frac{m^5}{k^6} + \frac{32i}{35\pi} \frac{m^7}{k^8} + \right. \\ & \left. + \frac{128i}{105\pi} \frac{m^9}{k^{10}} + \frac{512i}{231\pi} \frac{m^{11}}{k^{12}} + \dots \right) \end{aligned} \quad (4.177)$$

$$\begin{aligned} \tilde{T}_{1,3;3D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} & \left(\frac{i}{8\pi} \left(\frac{1}{5} \frac{1}{m} + \frac{1}{140} \frac{k^2}{m^3} + \frac{1}{1680} \frac{k^4}{m^5} + \frac{1}{14784} \frac{k^6}{m^7} + \frac{1}{109824} \frac{k^8}{m^9} + \right. \right. \\ & \left. \left. + \frac{1}{732160} \frac{k^{10}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.178)$$

$$\tilde{T}_{1,3;3D}^{\text{s,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.179)$$

Scalars, spin 1 x 3, dimension 4:

$$\begin{aligned} \tilde{T}_{1,3;4D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} & \left(\frac{i}{4\pi^2} \left(\left(\frac{23}{150} - \frac{P}{20} \right) + \left(-\frac{5}{6} + \frac{K}{2} \right) \frac{m^2}{k^2} + \left(\frac{3}{4} - \frac{3K}{2} \right) \frac{m^4}{k^4} + \right. \right. \\ & + \left(\frac{11}{6} + K \right) \frac{m^6}{k^6} + \left(\frac{1}{24} + \frac{K}{2} \right) \frac{m^8}{k^8} + \left(-\frac{23}{100} + \frac{3K}{5} \right) \frac{m^{10}}{k^{10}} + \\ & \left. \left. + \left(-\frac{37}{60} + K \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \end{aligned} \quad (4.180)$$

$$\tilde{T}_{1,3;4D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{80\pi^2} \left(-L_0 + \frac{1}{14} \frac{k^2}{m^2} + \frac{1}{252} \frac{k^4}{m^4} + \frac{1}{2772} \frac{k^6}{m^6} + \frac{1}{24024} \frac{k^8}{m^8} + \right. \right.$$

$$+ \frac{1}{180180} \frac{k^{10}}{m^{10}} + \frac{1}{1225224} \frac{k^{12}}{m^{12}} + \dots \Big) \Big) \quad (4.181)$$

$$\tilde{T}_{1,3;4D}^{\text{s,UV-IR}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} \frac{i}{40\pi^2} \left(\frac{23}{15} - \frac{K}{2} \right) + \dots \quad (4.182)$$

Scalars, spin 1 x 3, dimension 5:

$$\begin{aligned} \tilde{T}_{1,3;5D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \Big(\frac{1}{\pi^2} \Big(-\frac{\pi}{1024} k + \frac{3\pi}{256} \frac{m^2}{k} - \frac{i}{12} \frac{m^3}{k^2} - \frac{3\pi}{64} \frac{m^4}{k^3} + \frac{i}{5} \frac{m^5}{k^4} + \frac{\pi}{16} \frac{m^6}{k^5} - \\ - \frac{4i}{35} \frac{m^7}{k^6} - \frac{16i}{315} \frac{m^9}{k^8} - \frac{64i}{1155} \frac{m^{11}}{k^{10}} + \dots \Big) \Big) \end{aligned} \quad (4.183)$$

$$\begin{aligned} \tilde{T}_{1,3;5D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \Big(\frac{i}{16\pi^2} \Big(-\frac{1}{5} m + \frac{1}{140} \frac{k^2}{m} + \frac{1}{5040} \frac{k^4}{m^3} + \frac{1}{73920} \frac{k^6}{m^5} + \frac{1}{768768} \frac{k^8}{m^7} + \\ + \frac{1}{6589440} \frac{k^{10}}{m^9} + \frac{1}{49786880} \frac{k^{12}}{m^{11}} + \dots \Big) \Big) \end{aligned} \quad (4.184)$$

$$\tilde{T}_{1,3;5D}^{\text{s,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.185)$$

Scalars, spin 1 x 3, dimension 6:

$$\begin{aligned} \tilde{T}_{1,3;6D}^{\text{s,t,UV}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \Big(\frac{i}{4\pi^3} \Big(\Big(\frac{11}{3675} - \frac{P}{1120} \Big) k^2 + \Big(-\frac{23}{600} + \frac{P}{80} \Big) m^2 + \Big(\frac{7}{96} - \frac{K}{16} \Big) \frac{m^4}{k^2} + \\ + \Big(-\frac{1}{48} + \frac{K}{8} \Big) \frac{m^6}{k^4} - \Big(\frac{25}{192} + \frac{K}{16} \Big) \frac{m^8}{k^6} - \Big(\frac{17}{2400} + \frac{K}{40} \Big) \frac{m^{10}}{k^8} + \\ + \Big(\frac{13}{2400} - \frac{K}{40} \Big) \frac{m^{12}}{k^{10}} + \dots \Big) \Big) \end{aligned} \quad (4.186)$$

$$\begin{aligned} \tilde{T}_{1,3;6D}^{\text{s,t,IR}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \Big(\frac{i}{320\pi^3} \Big((-1 + L_0) m^2 - \frac{L_0}{14} k^2 + \frac{1}{252} \frac{k^4}{m^2} + \frac{1}{5544} \frac{k^6}{m^4} + \frac{1}{72072} \frac{k^8}{m^6} + \\ + \frac{1}{720720} \frac{k^{10}}{m^8} + \frac{1}{6126120} \frac{k^{12}}{m^{10}} + \frac{1}{46558512} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) \end{aligned} \quad (4.187)$$

$$\tilde{T}_{1,3;6D}^{\text{s,UV-IR}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} \Big(\frac{i}{20\pi^3} \Big(\Big(\frac{11}{735} - \frac{K}{224} \Big) k^2 + \Big(-\frac{31}{240} + \frac{K}{16} \Big) m^2 \Big) \Big) + \dots \quad (4.188)$$

Scalars, spin 1 x 5, dimension 3:

$$\begin{aligned} \tilde{T}_{1,5;3D}^{\text{s,t,UV}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \Big(\frac{5}{128} \frac{1}{k} - \frac{i}{2\pi} \frac{m}{k^2} - \frac{15}{32} \frac{m^2}{k^3} + \frac{10i}{3\pi} \frac{m^3}{k^4} + \frac{15}{8} \frac{m^4}{k^5} - \frac{8i}{\pi} \frac{m^5}{k^6} - \frac{5}{2} \frac{m^6}{k^7} + \\ + \frac{32i}{7\pi} \frac{m^7}{k^8} + \frac{128i}{63\pi} \frac{m^9}{k^{10}} + \frac{512i}{231\pi} \frac{m^{11}}{k^{12}} + \dots \Big) \end{aligned} \quad (4.189)$$

$$\begin{aligned} \tilde{T}_{1,5;3D}^{s,t,IR} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{8\pi} \left(-\frac{1}{7} \frac{1}{m} - \frac{1}{252} \frac{k^2}{m^3} - \frac{1}{3696} \frac{k^4}{m^5} - \frac{5}{192192} \frac{k^6}{m^7} - \frac{1}{329472} \frac{k^8}{m^9} - \right. \right. \\ & \left. \left. - \frac{1}{2489344} \frac{k^{10}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.190)$$

$$\tilde{T}_{1,5;3D}^{s,UV-IR} = \dots \text{(i.e. no overlap)} \quad (4.191)$$

Scalars, spin 1 x 5, dimension 4:

$$\begin{aligned} \tilde{T}_{1,5;4D}^{s,t,UV} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{\pi^2} \left(\left(-\frac{22}{735} + \frac{P}{112} \right) + \left(\frac{31}{120} - \frac{K}{8} \right) \frac{m^2}{k^2} + \left(-\frac{35}{48} + \frac{5K}{8} \right) \frac{m^4}{k^4} + \right. \right. \\ & + \left(\frac{5}{24} - \frac{5K}{4} \right) \frac{m^6}{k^6} + \left(\frac{125}{96} + \frac{5K}{8} \right) \frac{m^8}{k^8} + \left(\frac{17}{240} + \frac{K}{4} \right) \frac{m^{10}}{k^{10}} + \\ & \left. \left. + \left(-\frac{13}{240} + \frac{K}{4} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \end{aligned} \quad (4.192)$$

$$\begin{aligned} \tilde{T}_{1,5;4D}^{s,t,IR} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{112\pi^2} \left(L_0 - \frac{1}{18} \frac{k^2}{m^2} - \frac{1}{396} \frac{k^4}{m^4} - \frac{1}{5148} \frac{k^6}{m^6} - \frac{1}{51480} \frac{k^8}{m^8} - \right. \right. \\ & \left. \left. - \frac{1}{437580} \frac{k^{10}}{m^{10}} - \frac{1}{3325608} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.193)$$

$$\tilde{T}_{1,5;4D}^{s,UV-IR} = k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \frac{i}{7\pi^2} \left(-\frac{22}{105} + \frac{K}{16} \right) + \dots \quad (4.194)$$

Scalars, spin 1 x 5, dimension 5:

$$\begin{aligned} \tilde{T}_{1,5;5D}^{s,t,UV} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{1}{\pi^2} \left(\frac{5\pi}{8192} k - \frac{5\pi}{512} \frac{m^2}{k} + \frac{i}{12} \frac{m^3}{k^2} + \frac{15\pi}{256} \frac{m^4}{k^3} - \frac{i}{3} \frac{m^5}{k^4} - \frac{5\pi}{32} \frac{m^6}{k^5} + \right. \right. \\ & \left. \left. + \frac{4i}{7} \frac{m^7}{k^6} + \frac{5\pi}{32} \frac{m^8}{k^7} - \frac{16i}{63} \frac{m^9}{k^8} - \frac{64i}{693} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.195)$$

$$\begin{aligned} \tilde{T}_{1,5;5D}^{s,t,IR} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{16\pi^2} \left(\frac{1}{7} m - \frac{1}{252} \frac{k^2}{m} - \frac{1}{11088} \frac{k^4}{m^3} - \frac{1}{192192} \frac{k^6}{m^5} - \frac{1}{2306304} \frac{k^8}{m^7} - \right. \right. \\ & \left. \left. - \frac{1}{22404096} \frac{k^{10}}{m^9} - \frac{1}{189190144} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.196)$$

$$\tilde{T}_{1,5;5D}^{s,UV-IR} = \dots \text{(i.e. no overlap)} \quad (4.197)$$

Scalars, spin 1 x 5, dimension 6:

$$\begin{aligned} \tilde{T}_{1,5;6D}^{s,t,UV} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{2\pi^3} \left(\left(-\frac{563}{635040} + \frac{P}{4032} \right) k^2 + \left(\frac{11}{735} - \frac{P}{224} \right) m^2 + \right. \right. \\ & \left. \left. + \left(-\frac{47}{960} + \frac{K}{32} \right) \frac{m^4}{k^2} + \left(\frac{25}{288} - \frac{5K}{48} \right) \frac{m^6}{k^4} + \left(\frac{5}{384} + \frac{5K}{32} \right) \frac{m^8}{k^6} - \right. \right. \end{aligned}$$

$$-\left(\frac{137}{960} + \frac{K}{16}\right) \frac{m^{10}}{k^8} - \left(\frac{3}{320} + \frac{K}{48}\right) \frac{m^{12}}{k^{10}} + \dots \Bigg) \quad (4.198)$$

$$\begin{aligned} \tilde{T}_{1,5;6D}^{s,t,IR} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \Bigg(& \frac{i}{448\pi^3} \left((1-L_0) m^2 + \frac{L_0}{18} k^2 - \frac{1}{396} \frac{k^4}{m^2} - \frac{1}{10296} \frac{k^6}{m^4} - \frac{1}{154440} \frac{k^8}{m^6} - \right. \\ & \left. - \frac{1}{1750320} \frac{k^{10}}{m^8} - \frac{1}{16628040} \frac{k^{12}}{m^{10}} - \frac{1}{139675536} \frac{k^{14}}{m^{12}} + \dots \right) \Bigg) \end{aligned} \quad (4.199)$$

$$\tilde{T}_{1,5;6D}^{s,UV-IR} = k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{448\pi^3} \left(\left(-\frac{563}{2835} + \frac{K}{18} \right) k^2 + \left(\frac{247}{105} - K \right) m^2 \right) \right) + \dots \quad (4.200)$$

Scalars, spin 2 x 2, dimension 3:

$$\begin{aligned} \tilde{T}_{2,2;3D}^{s,t,UV} = k^4 \pi_{\mu\nu}^2 \Bigg(& -\frac{1}{32} \frac{1}{k} + \frac{i}{2\pi} \frac{m}{k^2} + \frac{1}{4} \frac{m^2}{k^3} - \frac{4i}{3\pi} \frac{m^3}{k^4} - \frac{1}{2} \frac{m^4}{k^5} + \frac{16i}{15\pi} \frac{m^5}{k^6} + \frac{64i}{105\pi} \frac{m^7}{k^8} + \\ & + \frac{256i}{315\pi} \frac{m^9}{k^{10}} + \frac{1024i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \Bigg) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \Bigg(-\frac{1}{64} \frac{1}{k} + \frac{1}{8} \frac{m^2}{k^3} - \frac{2i}{3\pi} \frac{m^3}{k^4} - \frac{1}{4} \frac{m^4}{k^5} + \frac{8i}{15\pi} \frac{m^5}{k^6} + \frac{32i}{105\pi} \frac{m^7}{k^8} + \\ & + \frac{128i}{315\pi} \frac{m^9}{k^{10}} + \frac{512i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \Bigg) \end{aligned} \quad (4.201)$$

$$\begin{aligned} \tilde{T}_{2,2;3D}^{s,t,IR} = k^4 \pi_{\mu\nu}^2 \Bigg(& \frac{i}{6\pi} \left(\frac{m}{k^2} + \frac{1}{10} \frac{1}{m} + \frac{1}{280} \frac{k^2}{m^3} + \frac{1}{3360} \frac{k^4}{m^5} + \frac{1}{29568} \frac{k^6}{m^7} + \frac{1}{219648} \frac{k^8}{m^9} + \right. \\ & \left. + \frac{1}{1464320} \frac{k^{10}}{m^{11}} + \dots \right) \Bigg) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \Bigg(\frac{i}{6\pi} \left(-\frac{m}{k^2} + \frac{1}{20} \frac{1}{m} + \frac{1}{560} \frac{k^2}{m^3} + \frac{1}{6720} \frac{k^4}{m^5} + \frac{1}{59136} \frac{k^6}{m^7} + \right. \\ & \left. + \frac{1}{439296} \frac{k^8}{m^9} + \frac{1}{2928640} \frac{k^{10}}{m^{11}} + \dots \right) \Bigg) \end{aligned} \quad (4.202)$$

$$\tilde{T}_{2,2;3D}^{s,UV-IR} = k^4 \pi_{\mu\nu}^2 \left(\frac{i}{3\pi} \frac{m}{k^2} \right) + \dots \quad (4.203)$$

Scalars, spin 2 x 2, dimension 4:

$$\begin{aligned} \tilde{T}_{2,2;4D}^{s,t,UV} = k^4 \pi_{\mu\nu}^2 \Bigg(& \frac{i}{2\pi^2} \left(\left(\frac{23}{450} - \frac{P}{60} \right) - \left(\frac{7}{36} - \frac{P}{6} + \frac{L_0}{4} \right) \frac{m^2}{k^2} + \left(\frac{1}{4} - \frac{K}{2} \right) \frac{m^4}{k^4} + \right. \\ & + \left(\frac{11}{18} + \frac{K}{3} \right) \frac{m^6}{k^6} + \left(\frac{1}{72} + \frac{K}{6} \right) \frac{m^8}{k^8} + \left(-\frac{23}{300} + \frac{K}{5} \right) \frac{m^{10}}{k^{10}} + \\ & \left. + \left(-\frac{37}{180} + \frac{K}{3} \right) \frac{m^{12}}{k^{12}} + \dots \right) \Bigg) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \Bigg(\frac{i}{\pi^2} \left(\left(\frac{23}{1800} - \frac{P}{240} \right) + \left(-\frac{1}{9} + \frac{P}{24} \right) \frac{m^2}{k^2} + \left(\frac{1}{16} - \frac{K}{8} \right) \frac{m^4}{k^4} + \right. \end{aligned}$$

$$\begin{aligned}
& + \left(\frac{11}{72} + \frac{K}{12} \right) \frac{m^6}{k^6} + \left(\frac{1}{288} + \frac{K}{24} \right) \frac{m^8}{k^8} + \left(-\frac{23}{1200} + \frac{K}{20} \right) \frac{m^{10}}{k^{10}} + \\
& + \left(-\frac{37}{720} + \frac{K}{12} \right) \frac{m^{12}}{k^{12}} + \dots \Big) \Big) \quad (4.204)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;4D}^{s,t,IR} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{24\pi^2} \left((1-L_0) \frac{m^2}{k^2} - \frac{L_0}{5} + \frac{1}{70} \frac{k^2}{m^2} + \frac{1}{1260} \frac{k^4}{m^4} + \frac{1}{13860} \frac{k^6}{m^6} + \right. \right. \\
& \left. \left. + \frac{1}{120120} \frac{k^8}{m^8} + \frac{1}{900900} \frac{k^{10}}{m^{10}} + \frac{1}{6126120} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{24\pi^2} \left((-1+L_0) \frac{m^2}{k^2} - \frac{L_0}{10} + \frac{1}{140} \frac{k^2}{m^2} + \frac{1}{2520} \frac{k^4}{m^4} + \frac{1}{27720} \frac{k^6}{m^6} + \right. \right. \\
& \left. \left. + \frac{1}{240240} \frac{k^8}{m^8} + \frac{1}{1801800} \frac{k^{10}}{m^{10}} + \frac{1}{12252240} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.205)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;4D}^{s,UV-IR} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{12\pi^2} \left(\left(\frac{23}{75} - \frac{K}{10} \right) + \left(-\frac{5}{3} + K \right) \frac{m^2}{k^2} \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{24\pi^2} \left(\left(\frac{23}{75} - \frac{K}{10} \right) + \left(-\frac{5}{3} + K \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.206)
\end{aligned}$$

Scalars, spin 2 x 2, dimension 5:

$$\begin{aligned}
\tilde{T}_{2,2;5D}^{s,t,UV} = & k^4 \pi_{\mu\nu}^2 \left(\frac{1}{\pi^2} \left(-\frac{\pi}{1536} k + \frac{\pi}{128} \frac{m^2}{k} - \frac{i}{12} \frac{m^3}{k^2} - \frac{\pi}{32} \frac{m^4}{k^3} + \frac{2i}{15} \frac{m^5}{k^4} + \frac{\pi}{24} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{8i}{105} \frac{m^7}{k^6} - \frac{32i}{945} \frac{m^9}{k^8} - \frac{128i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{\pi}{3072} k + \frac{\pi}{256} \frac{m^2}{k} - \frac{\pi}{64} \frac{m^4}{k^3} + \frac{i}{15} \frac{m^5}{k^4} + \frac{\pi}{48} \frac{m^6}{k^5} - \frac{4i}{105} \frac{m^7}{k^6} - \right. \right. \\
& \left. \left. - \frac{16i}{945} \frac{m^9}{k^8} - \frac{64i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.207)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;5D}^{s,t,IR} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{12\pi^2} \left(-\frac{1}{3} \frac{m^3}{k^2} - \frac{1}{10} m + \frac{1}{280} \frac{k^2}{m} + \frac{1}{10080} \frac{k^4}{m^3} + \frac{1}{147840} \frac{k^6}{m^5} + \right. \right. \\
& \left. \left. + \frac{1}{1537536} \frac{k^8}{m^7} + \frac{1}{13178880} \frac{k^{10}}{m^9} + \frac{1}{99573760} \frac{k^{12}}{m^{11}} + \dots \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{12\pi^2} \left(\frac{1}{3} \frac{m^3}{k^2} - \frac{1}{20} m + \frac{1}{560} \frac{k^2}{m} + \frac{1}{20160} \frac{k^4}{m^3} + \frac{1}{295680} \frac{k^6}{m^5} + \right. \right. \\
& \left. \left. + \frac{1}{3075072} \frac{k^8}{m^7} + \frac{1}{26357760} \frac{k^{10}}{m^9} + \frac{1}{199147520} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.208)
\end{aligned}$$

$$\tilde{T}_{2,2;5D}^{s,UV-IR} = k^4 \pi_{\mu\nu}^2 \left(-\frac{i}{18\pi^2} \frac{m^3}{k^2} \right) + \dots \quad (4.209)$$

Scalars, spin 2 x 2, dimension 6:

$$\begin{aligned}
\tilde{T}_{2,2;6D}^{s,t,UV} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi^3} \left(\left(\frac{11}{11025} - \frac{P}{3360} \right) k^2 + \left(-\frac{23}{1800} + \frac{P}{240} \right) m^2 + \right. \right. \\
& + \left(\frac{5}{576} - \frac{P}{48} + \frac{L_0}{32} \right) \frac{m^4}{k^2} + \left(-\frac{1}{144} + \frac{K}{24} \right) \frac{m^6}{k^4} - \left(\frac{25}{576} + \frac{K}{48} \right) \frac{m^8}{k^6} - \\
& \left. - \left(\frac{17}{7200} + \frac{K}{120} \right) \frac{m^{10}}{k^8} + \left(\frac{13}{7200} - \frac{K}{120} \right) \frac{m^{12}}{k^{10}} + \dots \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{12\pi^3} \left(\left(\frac{11}{3675} - \frac{P}{1120} \right) k^2 + \left(-\frac{23}{600} + \frac{P}{80} \right) m^2 + \right. \right. \\
& + \left(\frac{1}{6} - \frac{P}{16} \right) \frac{m^4}{k^2} + \left(-\frac{1}{48} + \frac{K}{8} \right) \frac{m^6}{k^4} - \left(\frac{25}{192} + \frac{K}{16} \right) \frac{m^8}{k^6} - \\
& \left. - \left(\frac{17}{2400} + \frac{K}{40} \right) \frac{m^{10}}{k^8} + \left(\frac{13}{2400} - \frac{K}{40} \right) \frac{m^{12}}{k^{10}} + \dots \right) \quad (4.210)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;6D}^{s,t,IR} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{32\pi^3} \left(\left(-\frac{1}{4} + \frac{L_0}{6} \right) \frac{m^4}{k^2} + \left(-\frac{1}{15} + \frac{L_0}{15} \right) m^2 - \frac{L_0}{210} k^2 + \frac{1}{3780} \frac{k^4}{m^2} + \right. \right. \\
& + \frac{1}{83160} \frac{k^6}{m^4} + \frac{1}{1081080} \frac{k^8}{m^6} + \frac{1}{10810800} \frac{k^{10}}{m^8} + \frac{1}{91891800} \frac{k^{12}}{m^{10}} + \\
& \left. + \frac{1}{698377680} \frac{k^{14}}{m^{12}} + \dots \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{64\pi^3} \left(\left(\frac{1}{2} - \frac{L_0}{3} \right) \frac{m^4}{k^2} + \left(-\frac{1}{15} + \frac{L_0}{15} \right) m^2 - \frac{L_0}{210} k^2 + \right. \right. \\
& + \frac{1}{3780} \frac{k^4}{m^2} + \frac{1}{83160} \frac{k^6}{m^4} + \frac{1}{1081080} \frac{k^8}{m^6} + \frac{1}{10810800} \frac{k^{10}}{m^8} + \\
& \left. + \frac{1}{91891800} \frac{k^{12}}{m^{10}} + \frac{1}{698377680} \frac{k^{14}}{m^{12}} + \dots \right) \quad (4.211)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;6D}^{s,UV-IR} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{6\pi^3} \left(\left(\frac{11}{3675} - \frac{K}{1120} \right) k^2 + \left(-\frac{31}{1200} + \frac{K}{80} \right) m^2 + \right. \right. \\
& + \left(\frac{7}{96} - \frac{K}{16} \right) \frac{m^4}{k^2} \left. \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{12\pi^3} \left(\left(\frac{11}{3675} - \frac{K}{1120} \right) k^2 + \left(-\frac{31}{1200} + \frac{K}{80} \right) m^2 + \right. \right. \\
& + \left(\frac{7}{96} - \frac{K}{16} \right) \frac{m^4}{k^2} \left. \right) + \dots \quad (4.212)
\end{aligned}$$

Scalars, spin 2 x 4, dimension 3:

$$\begin{aligned}
\tilde{T}_{2,4;3D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{32} \frac{1}{k} - \frac{i}{2\pi} \frac{m}{k^2} - \frac{3}{8} \frac{m^2}{k^3} + \frac{8i}{3\pi} \frac{m^3}{k^4} + \frac{3}{2} \frac{m^4}{k^5} - \frac{32i}{5\pi} \frac{m^5}{k^6} - 2 \frac{m^6}{k^7} + \right. \\
& + \frac{128i}{35\pi} \frac{m^7}{k^8} + \frac{512i}{315\pi} \frac{m^9}{k^{10}} + \frac{2048i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \left. \right) +
\end{aligned}$$

$$\begin{aligned}
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{1}{128} \frac{1}{k} - \frac{3}{32} \frac{m^2}{k^3} + \frac{2i}{3\pi} \frac{m^3}{k^4} + \frac{3}{8} \frac{m^4}{k^5} - \frac{8i}{5\pi} \frac{m^5}{k^6} - \frac{1}{2} \frac{m^6}{k^7} + \frac{32i}{35\pi} \frac{m^7}{k^8} + \right. \\
& \left. + \frac{128i}{315\pi} \frac{m^9}{k^{10}} + \frac{512i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \right)
\end{aligned} \tag{4.213}$$

$$\begin{aligned}
\tilde{T}_{2,4;3D}^{s,t,IR} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(-\frac{1}{5} \frac{m}{k^2} - \frac{1}{35} \frac{1}{m} - \frac{1}{1260} \frac{k^2}{m^3} - \frac{1}{18480} \frac{k^4}{m^5} - \frac{1}{192192} \frac{k^6}{m^7} - \right. \right. \\
& \left. \left. - \frac{1}{1647360} \frac{k^8}{m^9} - \frac{1}{12446720} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(\frac{1}{5} \frac{m}{k^2} - \frac{1}{140} \frac{1}{m} - \frac{1}{5040} \frac{k^2}{m^3} - \frac{1}{73920} \frac{k^4}{m^5} - \frac{1}{768768} \frac{k^6}{m^7} - \right. \right. \\
& \left. \left. - \frac{1}{6589440} \frac{k^8}{m^9} - \frac{1}{49786880} \frac{k^{10}}{m^{11}} + \dots \right) \right)
\end{aligned} \tag{4.214}$$

$$\tilde{T}_{2,4;3D}^{s,UV-IR} = k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(-\frac{2i}{5\pi} \frac{m}{k^2} \right) + \dots \tag{4.215}$$

Scalars, spin 2 x 4, dimension 4:

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{88}{3675} + \frac{P}{140} \right) + \left(\frac{109}{600} - \frac{P}{10} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{7}{12} + \frac{K}{2} \right) \frac{m^4}{k^4} + \left(\frac{1}{6} - K \right) \frac{m^6}{k^6} + \left(\frac{25}{24} + \frac{K}{2} \right) \frac{m^8}{k^8} + \\
& + \left(\frac{17}{300} + \frac{K}{5} \right) \frac{m^{10}}{k^{10}} + \left(-\frac{13}{300} + \frac{K}{5} \right) \frac{m^{12}}{k^{12}} + \dots \left. \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{22}{3675} + \frac{P}{560} \right) + \left(\frac{23}{300} - \frac{P}{40} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{7}{48} + \frac{K}{8} \right) \frac{m^4}{k^4} + \left(\frac{1}{24} - \frac{K}{4} \right) \frac{m^6}{k^6} + \left(\frac{25}{96} + \frac{K}{8} \right) \frac{m^8}{k^8} + \\
& + \left(\frac{17}{1200} + \frac{K}{20} \right) \frac{m^{10}}{k^{10}} + \left(-\frac{13}{1200} + \frac{K}{20} \right) \frac{m^{12}}{k^{12}} + \dots \left. \right)
\end{aligned} \tag{4.216}$$

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{s,t,IR} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{20\pi^2} \left(\left(-\frac{1}{2} + \frac{L_0}{2} \right) \frac{m^2}{k^2} + \frac{L_0}{7} - \frac{1}{126} \frac{k^2}{m^2} - \frac{1}{2772} \frac{k^4}{m^4} - \frac{1}{36036} \frac{k^6}{m^6} - \right. \right. \\
& \left. \left. - \frac{1}{360360} \frac{k^8}{m^8} - \frac{1}{3063060} \frac{k^{10}}{m^{10}} - \frac{1}{23279256} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{40\pi^2} \left((1 - L_0) \frac{m^2}{k^2} + \frac{L_0}{14} - \frac{1}{252} \frac{k^2}{m^2} - \frac{1}{5544} \frac{k^4}{m^4} - \frac{1}{72072} \frac{k^6}{m^6} - \right. \right. \\
& \left. \left. - \frac{1}{720720} \frac{k^8}{m^8} - \frac{1}{6126120} \frac{k^{10}}{m^{10}} - \frac{1}{46558512} \frac{k^{12}}{m^{12}} + \dots \right) \right)
\end{aligned} \tag{4.217}$$

$$\tilde{T}_{2,4;4D}^{s,UV-IR} = k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(-\frac{88}{735} + \frac{K}{28} \right) + \left(\frac{31}{30} - \frac{K}{2} \right) \frac{m^2}{k^2} \right) \right) +$$

$$+ k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(-\frac{22}{735} + \frac{K}{112} \right) + \left(\frac{31}{120} - \frac{K}{8} \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.218)$$

Scalars, spin 2 x 4, dimension 5:

$$\begin{aligned} \tilde{T}_{2,4;5D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{\pi}{2048} k - \frac{\pi}{128} \frac{m^2}{k} + \frac{i}{12} \frac{m^3}{k^2} + \frac{3\pi}{64} \frac{m^4}{k^3} - \frac{4i}{15} \frac{m^5}{k^4} - \frac{\pi}{8} \frac{m^6}{k^5} + \right. \right. \\ & \left. \left. + \frac{16i}{35} \frac{m^7}{k^6} + \frac{\pi}{8} \frac{m^8}{k^7} - \frac{64i}{315} \frac{m^9}{k^8} - \frac{256i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(\frac{\pi}{8192} k - \frac{\pi}{512} \frac{m^2}{k} + \frac{3\pi}{256} \frac{m^4}{k^3} - \frac{i}{15} \frac{m^5}{k^4} - \frac{\pi}{32} \frac{m^6}{k^5} + \frac{4i}{35} \frac{m^7}{k^6} + \right. \right. \\ & \left. \left. + \frac{\pi}{32} \frac{m^8}{k^7} - \frac{16i}{315} \frac{m^9}{k^8} - \frac{64i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.219)$$

$$\begin{aligned} \tilde{T}_{2,4;5D}^{s,t,IR} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{20\pi^2} \left(\frac{1}{3} \frac{m^3}{k^2} + \frac{1}{7} m - \frac{1}{252} \frac{k^2}{m} - \frac{1}{11088} \frac{k^4}{m^3} - \frac{1}{192192} \frac{k^6}{m^5} - \right. \right. \\ & \left. \left. - \frac{1}{2306304} \frac{k^8}{m^7} - \frac{1}{22404096} \frac{k^{10}}{m^9} - \frac{1}{189190144} \frac{k^{12}}{m^{11}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^2} \left(-\frac{1}{3} \frac{m^3}{k^2} + \frac{1}{28} m - \frac{1}{1008} \frac{k^2}{m} - \frac{1}{44352} \frac{k^4}{m^3} - \frac{1}{768768} \frac{k^6}{m^5} - \right. \right. \\ & \left. \left. - \frac{1}{9225216} \frac{k^8}{m^7} - \frac{1}{89616384} \frac{k^{10}}{m^9} - \frac{1}{756760576} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.220)$$

$$\tilde{T}_{2,4;5D}^{s,UV-IR} = k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{15\pi^2} \frac{m^3}{k^2} \right) + \dots \quad (4.221)$$

Scalars, spin 2 x 4, dimension 6:

$$\begin{aligned} \tilde{T}_{2,4;6D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{563}{1587600} + \frac{P}{10080} \right) k^2 + \left(\frac{22}{3675} - \frac{P}{560} \right) m^2 - \right. \right. \\ & - \left(\frac{143}{9600} - \frac{P}{80} + \frac{L_0}{64} \right) \frac{m^4}{k^2} + \left(\frac{5}{144} - \frac{K}{24} \right) \frac{m^6}{k^4} + \left(\frac{1}{192} + \frac{K}{16} \right) \frac{m^8}{k^6} - \\ & - \left(\frac{137}{2400} + \frac{K}{40} \right) \frac{m^{10}}{k^8} - \left(\frac{3}{800} + \frac{K}{120} \right) \frac{m^{12}}{k^{10}} + \dots \left. \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi^3} \left(\left(-\frac{563}{3175200} + \frac{P}{20160} \right) k^2 + \left(\frac{11}{3675} - \frac{P}{1120} \right) m^2 + \right. \right. \\ & + \left(-\frac{23}{1200} + \frac{P}{160} \right) \frac{m^4}{k^2} + \left(\frac{5}{288} - \frac{K}{48} \right) \frac{m^6}{k^4} + \left(\frac{1}{384} + \frac{K}{32} \right) \frac{m^8}{k^6} - \\ & - \left(\frac{137}{4800} + \frac{K}{80} \right) \frac{m^{10}}{k^8} - \left(\frac{3}{1600} + \frac{K}{240} \right) \frac{m^{12}}{k^{10}} + \dots \left. \right) \end{aligned} \quad (4.222)$$

$$\tilde{T}_{2,4;6D}^{s,t,IR} = k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{80\pi^3} \left(\left(\frac{3}{8} - \frac{L_0}{4} \right) \frac{m^4}{k^2} + \left(\frac{1}{7} - \frac{L_0}{7} \right) m^2 + \frac{L_0}{126} k^2 - \frac{1}{2772} \frac{k^4}{m^2} - \right. \right.$$

$$\begin{aligned}
& -\frac{1}{72072} \frac{k^6}{m^4} - \frac{1}{1081080} \frac{k^8}{m^6} - \frac{1}{12252240} \frac{k^{10}}{m^8} - \frac{1}{116396280} \frac{k^{12}}{m^{10}} - \\
& -\frac{1}{977728752} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{320\pi^3} \left(\left(-\frac{3}{2} + L_0 \right) \frac{m^4}{k^2} + \left(\frac{1}{7} - \frac{L_0}{7} \right) m^2 + \frac{L_0}{126} k^2 - \right. \right. \\
& - \frac{1}{2772} \frac{k^4}{m^2} - \frac{1}{72072} \frac{k^6}{m^4} - \frac{1}{1081080} \frac{k^8}{m^6} - \frac{1}{12252240} \frac{k^{10}}{m^8} - \\
& \left. \left. - \frac{1}{116396280} \frac{k^{12}}{m^{10}} - \frac{1}{977728752} \frac{k^{14}}{m^{12}} + \dots \right) \right) \Big) \quad (4.223)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,4;6D}^{s,UV-IR} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{80\pi^3} \left(\left(-\frac{563}{19845} + \frac{K}{126} \right) k^2 + \left(\frac{247}{735} - \frac{K}{7} \right) m^2 + \right. \right. \\
& \left. \left. + \left(-\frac{47}{30} + K \right) \frac{m^4}{k^2} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{320\pi^3} \left(\left(-\frac{563}{19845} + \frac{K}{126} \right) k^2 + \left(\frac{247}{735} - \frac{K}{7} \right) m^2 + \right. \right. \\
& \left. \left. + \left(-\frac{47}{30} + K \right) \frac{m^4}{k^2} \right) \right) + \dots \quad (4.224)
\end{aligned}$$

Scalars, spin 3 x 3, dimension 3:

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^3 \left(\frac{1}{64} \frac{1}{k} - \frac{i}{2\pi} \frac{m}{k^2} - \frac{3}{16} \frac{m^2}{k^3} + \frac{4i}{3\pi} \frac{m^3}{k^4} + \frac{3}{4} \frac{m^4}{k^5} - \frac{16i}{5\pi} \frac{m^5}{k^6} - \frac{m^6}{k^7} + \frac{64i}{35\pi} \frac{m^7}{k^8} + \right. \\
& \left. + \frac{256i}{315\pi} \frac{m^9}{k^{10}} + \frac{1024i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{3}{128} \frac{1}{k} - \frac{9}{32} \frac{m^2}{k^3} + \frac{2i}{\pi} \frac{m^3}{k^4} + \frac{9}{8} \frac{m^4}{k^5} - \frac{24i}{5\pi} \frac{m^5}{k^6} - \frac{3}{2} \frac{m^6}{k^7} + \right. \\
& \left. + \frac{96i}{35\pi} \frac{m^7}{k^8} + \frac{128i}{105\pi} \frac{m^9}{k^{10}} + \frac{512i}{385\pi} \frac{m^{11}}{k^{12}} + \dots \right) \quad (4.225)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{s,t,IR} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{2\pi} \left(-\frac{3}{5} \frac{m}{k^2} - \frac{1}{70} \frac{1}{m} - \frac{1}{2520} \frac{k^2}{m^3} - \frac{1}{36960} \frac{k^4}{m^5} - \frac{1}{384384} \frac{k^6}{m^7} - \right. \right. \\
& \left. \left. - \frac{1}{3294720} \frac{k^8}{m^9} - \frac{1}{24893440} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(\frac{3}{5} \frac{m}{k^2} - \frac{3}{140} \frac{1}{m} - \frac{1}{1680} \frac{k^2}{m^3} - \frac{1}{24640} \frac{k^4}{m^5} - \frac{1}{256256} \frac{k^6}{m^7} - \right. \right. \\
& \left. \left. - \frac{1}{2196480} \frac{k^8}{m^9} - \frac{3}{49786880} \frac{k^{10}}{m^{11}} + \dots \right) \right) \quad (4.226)
\end{aligned}$$

$$\tilde{T}_{3,3;3D}^{s,UV-IR} = k^6 \pi_{\mu\nu}^3 \left(-\frac{i}{5\pi} \frac{m}{k^2} \right) + \dots \quad (4.227)$$

Scalars, spin 3 x 3, dimension 4:

$$\begin{aligned}
\tilde{T}_{3,3;4D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(\left(-\frac{44}{3675} + \frac{P}{280} \right) + \left(\frac{17}{600} - \frac{P}{20} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \left(-\frac{7}{24} + \frac{K}{4} \right) \frac{m^4}{k^4} + \right. \right. \\
& + \left(\frac{1}{12} - \frac{K}{2} \right) \frac{m^6}{k^6} + \left(\frac{25}{48} + \frac{K}{4} \right) \frac{m^8}{k^8} + \left(\frac{17}{600} + \frac{K}{10} \right) \frac{m^{10}}{k^{10}} + \\
& \left. \left. + \left(-\frac{13}{600} + \frac{K}{10} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{22}{1225} + \frac{3P}{560} \right) + \left(\frac{23}{100} - \frac{3P}{40} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{7}{16} + \frac{3K}{8} \right) \frac{m^4}{k^4} + \left(\frac{1}{8} - \frac{3K}{4} \right) \frac{m^6}{k^6} + \left(\frac{25}{32} + \frac{3K}{8} \right) \frac{m^8}{k^8} + \\
& \left. \left. + \left(\frac{17}{400} + \frac{3K}{20} \right) \frac{m^{10}}{k^{10}} + \left(-\frac{13}{400} + \frac{3K}{20} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \quad (4.228)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;4D}^{s,t,IR} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{40\pi^2} \left((-3 + 3L_0) \frac{m^2}{k^2} + \frac{L_0}{7} - \frac{1}{126} \frac{k^2}{m^2} - \frac{1}{2772} \frac{k^4}{m^4} - \frac{1}{36036} \frac{k^6}{m^6} - \right. \right. \\
& - \frac{1}{360360} \frac{k^8}{m^8} - \frac{1}{3063060} \frac{k^{10}}{m^{10}} - \frac{1}{23279256} \frac{k^{12}}{m^{12}} + \dots \left. \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{40\pi^2} \left((3 - 3L_0) \frac{m^2}{k^2} + \frac{3L_0}{14} - \frac{1}{84} \frac{k^2}{m^2} - \frac{1}{1848} \frac{k^4}{m^4} - \right. \right. \\
& - \frac{1}{24024} \frac{k^6}{m^6} - \frac{1}{240240} \frac{k^8}{m^8} - \frac{1}{2042040} \frac{k^{10}}{m^{10}} - \frac{1}{15519504} \frac{k^{12}}{m^{12}} + \dots \left. \right) \left. \right) \quad (4.229)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;4D}^{s,t,UV-IR} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{5\pi^2} \left(\left(-\frac{44}{735} + \frac{K}{56} \right) + \left(\frac{31}{60} - \frac{K}{4} \right) \frac{m^2}{k^2} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(-\frac{22}{245} + \frac{3K}{112} \right) + \left(\frac{31}{40} - \frac{3K}{8} \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.230)
\end{aligned}$$

Scalars, spin 3 x 3, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,3;5D}^{s,t,UV} = & k^6 \pi_{\mu\nu}^3 \left(\frac{1}{\pi^2} \left(\frac{\pi}{4096} k - \frac{\pi}{256} \frac{m^2}{k} + \frac{i}{12} \frac{m^3}{k^2} + \frac{3\pi}{128} \frac{m^4}{k^3} - \frac{2i}{15} \frac{m^5}{k^4} - \frac{\pi}{16} \frac{m^6}{k^5} + \frac{8i}{35} \frac{m^7}{k^6} + \right. \right. \\
& \left. \left. + \frac{\pi}{16} \frac{m^8}{k^7} - \frac{32i}{315} \frac{m^9}{k^8} - \frac{128i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{3\pi}{8192} k - \frac{3\pi}{512} \frac{m^2}{k} + \frac{9\pi}{256} \frac{m^4}{k^3} - \frac{i}{5} \frac{m^5}{k^4} - \frac{3\pi}{32} \frac{m^6}{k^5} + \right. \right. \\
& \left. \left. + \frac{12i}{35} \frac{m^7}{k^6} + \frac{3\pi}{32} \frac{m^8}{k^7} - \frac{16i}{105} \frac{m^9}{k^8} - \frac{64i}{1155} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.231)
\end{aligned}$$

$$\tilde{T}_{3,3;5D}^{s,t,IR} = k^6 \pi_{\mu\nu}^3 \left(\frac{i}{20\pi^2} \left(\frac{m^3}{k^2} + \frac{1}{14} m - \frac{1}{504} \frac{k^2}{m} - \frac{1}{22176} \frac{k^4}{m^3} - \frac{1}{384384} \frac{k^6}{m^5} - \frac{1}{4612608} \frac{k^8}{m^7} - \right. \right.$$

$$\begin{aligned}
& -\frac{1}{44808192} \frac{k^{10}}{m^9} - \frac{1}{378380288} \frac{k^{12}}{m^{11}} + \dots \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{20\pi^2} \left(-\frac{m^3}{k^2} + \frac{3}{28} m - \frac{1}{336} \frac{k^2}{m} - \frac{1}{14784} \frac{k^4}{m^3} - \frac{1}{256256} \frac{k^6}{m^5} - \right. \right. \\
& \left. \left. - \frac{1}{3075072} \frac{k^8}{m^7} - \frac{1}{29872128} \frac{k^{10}}{m^9} - \frac{3}{756760576} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.232)
\end{aligned}$$

$$\tilde{T}_{3,3;5D}^{\text{s,UV-IR}} = k^6 \pi_{\mu\nu}^3 \left(\frac{i}{30\pi^2} \frac{m^3}{k^2} \right) + \dots \quad (4.233)$$

Scalars, spin 3 x 3, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{s,t,UV}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{\pi^3} \left(\left(-\frac{563}{3175200} + \frac{P}{20160} \right) k^2 + \left(\frac{11}{3675} - \frac{P}{1120} \right) m^2 - \right. \right. \\
& - \left(-\frac{41}{9600} - \frac{P}{160} + \frac{L_0}{64} \right) \frac{m^4}{k^2} + \left(\frac{5}{288} - \frac{K}{48} \right) \frac{m^6}{k^4} + \left(\frac{1}{384} + \frac{K}{32} \right) \frac{m^8}{k^6} - \\
& - \left(\frac{137}{4800} + \frac{K}{80} \right) \frac{m^{10}}{k^8} - \left(\frac{3}{1600} + \frac{K}{240} \right) \frac{m^{12}}{k^{10}} + \dots \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{2\pi^3} \left(\left(-\frac{563}{1058400} + \frac{P}{6720} \right) k^2 + \left(\frac{11}{1225} - \frac{3P}{1120} \right) m^2 + \right. \right. \\
& + \left(-\frac{23}{400} + \frac{3P}{160} \right) \frac{m^4}{k^2} + \left(\frac{5}{96} - \frac{K}{16} \right) \frac{m^6}{k^4} + \left(\frac{1}{128} + \frac{3K}{32} \right) \frac{m^8}{k^6} - \\
& - \left(\frac{137}{1600} + \frac{3K}{80} \right) \frac{m^{10}}{k^8} - \left(\frac{9}{1600} + \frac{K}{80} \right) \frac{m^{12}}{k^{10}} + \dots \Big) \Big) \quad (4.234)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{s,t,IR}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{160\pi^3} \left(\left(\frac{9}{4} - \frac{3L_0}{2} \right) \frac{m^4}{k^2} + \left(\frac{1}{7} - \frac{L_0}{7} \right) m^2 + \frac{L_0}{126} k^2 - \frac{1}{2772} \frac{k^4}{m^2} - \right. \right. \\
& - \frac{1}{72072} \frac{k^6}{m^4} - \frac{1}{1081080} \frac{k^8}{m^6} - \frac{1}{12252240} \frac{k^{10}}{m^8} - \frac{1}{116396280} \frac{k^{12}}{m^{10}} - \\
& - \frac{1}{977728752} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{320\pi^3} \left(\left(-\frac{9}{2} + 3L_0 \right) \frac{m^4}{k^2} + \left(\frac{3}{7} - \frac{3L_0}{7} \right) m^2 + \frac{L_0}{42} k^2 - \right. \right. \\
& - \frac{1}{924} \frac{k^4}{m^2} - \frac{1}{24024} \frac{k^6}{m^4} - \frac{1}{360360} \frac{k^8}{m^6} - \frac{1}{4084080} \frac{k^{10}}{m^8} - \frac{1}{38798760} \frac{k^{12}}{m^{10}} - \\
& - \frac{1}{325909584} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) \quad (4.235)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{s,UV-IR}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{160\pi^3} \left(\left(-\frac{563}{19845} + \frac{K}{126} \right) k^2 + \left(\frac{247}{735} - \frac{K}{7} \right) m^2 + \right. \right. \\
& + \left(-\frac{47}{30} + K \right) \frac{m^4}{k^2} \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{320\pi^3} \left(\left(-\frac{563}{6615} + \frac{K}{42} \right) k^2 + \left(\frac{247}{245} - \frac{3K}{7} \right) m^2 + \right. \right.
\end{aligned}$$

$$+ \left(-\frac{47}{10} + 3K \right) \frac{m^4}{k^2} \Big) + \dots \quad (4.236)$$

Scalars, spin 3 x 5, dimension 3:

$$\begin{aligned} \tilde{T}_{3,5;3D}^{s,t,UV} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(-\frac{5}{256} \frac{1}{k} + \frac{i}{2\pi} \frac{m}{k^2} + \frac{5}{16} \frac{m^2}{k^3} - \frac{8i}{3\pi} \frac{m^3}{k^4} - \frac{15}{8} \frac{m^4}{k^5} + \frac{32i}{3\pi} \frac{m^5}{k^6} + 5 \frac{m^6}{k^7} - \right. \\ & \left. - \frac{128i}{7\pi} \frac{m^7}{k^8} - 5 \frac{m^8}{k^9} + \frac{512i}{63\pi} \frac{m^9}{k^{10}} + \frac{2048i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(-\frac{15}{1024} \frac{1}{k} + \frac{15}{64} \frac{m^2}{k^3} - \frac{2i}{\pi} \frac{m^3}{k^4} - \frac{45}{32} \frac{m^4}{k^5} + \frac{8i}{\pi} \frac{m^5}{k^6} + \frac{15}{4} \frac{m^6}{k^7} - \right. \\ & \left. - \frac{96i}{7\pi} \frac{m^7}{k^8} - \frac{15}{4} \frac{m^8}{k^9} + \frac{128i}{21\pi} \frac{m^9}{k^{10}} + \frac{512i}{231\pi} \frac{m^{11}}{k^{12}} + \dots \right) \end{aligned} \quad (4.237)$$

$$\begin{aligned} \tilde{T}_{3,5;3D}^{s,t,IR} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(\frac{3}{7} \frac{m}{k^2} + \frac{1}{63} \frac{1}{m} + \frac{1}{2772} \frac{k^2}{m^3} + \frac{1}{48048} \frac{k^4}{m^5} + \frac{1}{576576} \frac{k^6}{m^7} + \right. \right. \\ & \left. \left. + \frac{1}{5601024} \frac{k^8}{m^9} + \frac{1}{47297536} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(-\frac{3}{7} \frac{m}{k^2} + \frac{1}{84} \frac{1}{m} + \frac{1}{3696} \frac{k^2}{m^3} + \frac{1}{64064} \frac{k^4}{m^5} + \frac{1}{768768} \frac{k^6}{m^7} + \right. \right. \\ & \left. \left. + \frac{1}{7468032} \frac{k^8}{m^9} + \frac{3}{189190144} \frac{k^{10}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.238)$$

$$\tilde{T}_{3,5;3D}^{s,UV-IR} = k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{2i}{7\pi} \frac{m}{k^2} \right) + \dots \quad (4.239)$$

Scalars, spin 3 x 5, dimension 4:

$$\begin{aligned} \tilde{T}_{3,5;4D}^{s,t,UV} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{563}{39690} - \frac{P}{252} \right) - \left(\frac{673}{5880} - \frac{P}{14} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(\frac{47}{60} - \frac{K}{2} \right) \frac{m^4}{k^4} + \left(-\frac{25}{18} + \frac{5K}{3} \right) \frac{m^6}{k^6} - \left(\frac{5}{24} + \frac{5K}{2} \right) \frac{m^8}{k^8} + \\ & \left. + \left(\frac{137}{60} + K \right) \frac{m^{10}}{k^{10}} + \left(\frac{3}{20} + \frac{K}{3} \right) \frac{m^{12}}{k^{12}} + \dots \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{563}{52920} - \frac{P}{336} \right) + \left(-\frac{44}{245} + \frac{3P}{56} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(\frac{47}{80} - \frac{3K}{8} \right) \frac{m^4}{k^4} + \left(-\frac{25}{24} + \frac{5K}{4} \right) \frac{m^6}{k^6} - \left(\frac{5}{32} + \frac{15K}{8} \right) \frac{m^8}{k^8} + \\ & \left. + \left(\frac{137}{80} + \frac{3K}{4} \right) \frac{m^{10}}{k^{10}} + \left(\frac{9}{80} + \frac{K}{4} \right) \frac{m^{12}}{k^{12}} + \dots \right) \end{aligned} \quad (4.240)$$

$$\tilde{T}_{3,5;4D}^{s,t,IR} = k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{28\pi^2} \left(\left(\frac{3}{2} - \frac{3L_0}{2} \right) \frac{m^2}{k^2} - \frac{L_0}{9} + \frac{1}{198} \frac{k^2}{m^2} + \frac{1}{5148} \frac{k^4}{m^4} + \frac{1}{77220} \frac{k^6}{m^6} + \right. \right.$$

$$\begin{aligned}
& + \frac{1}{875160} \frac{k^8}{m^8} + \frac{1}{8314020} \frac{k^{10}}{m^{10}} + \frac{1}{69837768} \frac{k^{12}}{m^{12}} + \dots \Big) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{56\pi^2} \left((-3 + 3L_0) \frac{m^2}{k^2} - \frac{L_0}{6} + \frac{1}{132} \frac{k^2}{m^2} + \frac{1}{3432} \frac{k^4}{m^4} + \right. \right. \\
& \left. \left. + \frac{1}{51480} \frac{k^6}{m^6} + \frac{1}{583440} \frac{k^8}{m^8} + \frac{1}{5542680} \frac{k^{10}}{m^{10}} + \frac{1}{46558512} \frac{k^{12}}{m^{12}} + \dots \right) \right) \Big) \quad (4.241)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{s,t,UV-IR}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{14\pi^2} \left(\left(\frac{563}{2835} - \frac{K}{18} \right) + \left(-\frac{247}{105} + K \right) \frac{m^2}{k^2} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{56\pi^2} \left(\left(\frac{563}{945} - \frac{K}{6} \right) + \left(-\frac{247}{35} + 3K \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.242)
\end{aligned}$$

Scalars, spin 3 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{\text{s,t,UV}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{\pi}{4096} k + \frac{5\pi}{1024} \frac{m^2}{k} - \frac{i}{12} \frac{m^3}{k^2} - \frac{5\pi}{128} \frac{m^4}{k^3} + \frac{4i}{15} \frac{m^5}{k^4} + \frac{5\pi}{32} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{16i}{21} \frac{m^7}{k^6} - \frac{5\pi}{16} \frac{m^8}{k^7} + \frac{64i}{63} \frac{m^9}{k^8} + \frac{\pi}{4} \frac{m^{10}}{k^9} - \frac{256i}{693} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(-\frac{3\pi}{16384} k + \frac{15\pi}{4096} \frac{m^2}{k} - \frac{15\pi}{512} \frac{m^4}{k^3} + \frac{i}{5} \frac{m^5}{k^4} + \frac{15\pi}{128} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{4i}{7} \frac{m^7}{k^6} - \frac{15\pi}{64} \frac{m^8}{k^7} + \frac{16i}{21} \frac{m^9}{k^8} + \frac{3\pi}{16} \frac{m^{10}}{k^9} - \frac{64i}{231} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.243)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{\text{s,t,IR}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{4\pi^2} \left(-\frac{1}{7} \frac{m^3}{k^2} - \frac{1}{63} m + \frac{1}{2772} \frac{k^2}{m} + \frac{1}{144144} \frac{k^4}{m^3} + \frac{1}{2882880} \frac{k^6}{m^5} + \right. \right. \\
& \left. \left. + \frac{1}{39207168} \frac{k^8}{m^7} + \frac{1}{425677824} \frac{k^{10}}{m^9} + \frac{1}{3972993024} \frac{k^{12}}{m^{11}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(\frac{1}{7} \frac{m^3}{k^2} - \frac{1}{84} m + \frac{1}{3696} \frac{k^2}{m} + \frac{1}{192192} \frac{k^4}{m^3} + \right. \right. \\
& \left. \left. + \frac{1}{3843840} \frac{k^6}{m^5} + \frac{1}{52276224} \frac{k^8}{m^7} + \frac{1}{567570432} \frac{k^{10}}{m^9} + \frac{1}{5297324032} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.244)
\end{aligned}$$

$$\tilde{T}_{3,5;5D}^{\text{s,t,UV-IR}} = k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(-\frac{i}{21\pi^2} \frac{m^3}{k^2} \right) + \dots \quad (4.245)$$

Scalars, spin 3 x 5, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{\text{s,t,UV}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{4\pi^3} \left(\left(\frac{1627}{2401245} - \frac{P}{5544} \right) k^2 + \left(-\frac{563}{39690} + \frac{P}{252} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{611}{23520} - \frac{P}{28} + \frac{L_0}{16} \right) \frac{m^4}{k^2} + \left(-\frac{37}{180} + \frac{K}{6} \right) \frac{m^6}{k^4} + \left(\frac{35}{144} - \frac{5K}{12} \right) \frac{m^8}{k^6} + \right. \right.
\end{aligned}$$

$$\begin{aligned}
& + \left(\frac{17}{120} + \frac{K}{2} \right) \frac{m^{10}}{k^8} - \left(\frac{49}{120} + \frac{K}{6} \right) \frac{m^{12}}{k^{10}} + \dots \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi^3} \left(\left(\frac{1627}{6403320} - \frac{P}{14784} \right) k^2 + \left(-\frac{563}{105840} + \frac{P}{672} \right) m^2 + \right. \right. \\
& + \left(\frac{11}{245} - \frac{3P}{224} \right) \frac{m^4}{k^2} + \left(-\frac{37}{480} + \frac{K}{16} \right) \frac{m^6}{k^4} + \left(\frac{35}{384} - \frac{5K}{32} \right) \frac{m^8}{k^6} + \\
& \left. \left. + \left(\frac{17}{320} + \frac{3K}{16} \right) \frac{m^{10}}{k^8} - \left(\frac{49}{320} + \frac{K}{16} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \quad (4.246)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{\text{s,t,IR}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{112\pi^3} \left(\left(-\frac{9}{8} + \frac{3L_0}{4} \right) \frac{m^4}{k^2} + \left(-\frac{1}{9} + \frac{L_0}{9} \right) m^2 - \frac{L_0}{198} k^2 + \frac{1}{5148} \frac{k^4}{m^2} + \right. \right. \\
& + \frac{1}{154440} \frac{k^6}{m^4} + \frac{1}{2625480} \frac{k^8}{m^6} + \frac{1}{33256080} \frac{k^{10}}{m^8} + \frac{1}{349188840} \frac{k^{12}}{m^{10}} + \\
& \left. \left. + \frac{1}{3212537328} \frac{k^{14}}{m^{12}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{448\pi^3} \left(\left(\frac{9}{2} - 3L_0 \right) \frac{m^4}{k^2} + \left(-\frac{1}{3} + \frac{L_0}{3} \right) m^2 - \frac{L_0}{66} k^2 + \right. \right. \\
& + \frac{1}{1716} \frac{k^4}{m^2} + \frac{1}{51480} \frac{k^6}{m^4} + \frac{1}{875160} \frac{k^8}{m^6} + \frac{1}{11085360} \frac{k^{10}}{m^8} + \\
& \left. \left. + \frac{1}{116396280} \frac{k^{12}}{m^{10}} + \frac{1}{1070845776} \frac{k^{14}}{m^{12}} + \dots \right) \right) \quad (4.247)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{\text{s,UV-IR}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{28\pi^3} \left(\left(\frac{1627}{343035} - \frac{K}{792} \right) k^2 + \left(-\frac{811}{11340} + \frac{K}{36} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{389}{840} - \frac{K}{4} \right) \frac{m^4}{k^2} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{112\pi^3} \left(\left(\frac{1627}{114345} - \frac{K}{264} \right) k^2 + \left(-\frac{811}{3780} + \frac{K}{12} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{389}{280} - \frac{3K}{4} \right) \frac{m^4}{k^2} \right) \right) + \dots \quad (4.248)
\end{aligned}$$

Scalars, spin 4 x 4, dimension 3:

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{\text{s,t,UV}} = & k^8 \pi_{\mu\nu}^4 \left(-\frac{1}{128} \frac{1}{k} + \frac{i}{2\pi} \frac{m}{k^2} + \frac{1}{8} \frac{m^2}{k^3} - \frac{2i}{3\pi} \frac{m^3}{k^4} - \frac{3}{4} \frac{m^4}{k^5} + \frac{64i}{15\pi} \frac{m^5}{k^6} + 2 \frac{m^6}{k^7} - \right. \\
& - \frac{256i}{35\pi} \frac{m^7}{k^8} - 2 \frac{m^8}{k^9} + \frac{1024i}{315\pi} \frac{m^9}{k^{10}} + \frac{4096i}{3465\pi} \frac{m^{11}}{k^{12}} + \dots \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(-\frac{3}{128} \frac{1}{k} + \frac{3}{8} \frac{m^2}{k^3} - \frac{4i}{\pi} \frac{m^3}{k^4} - \frac{9}{4} \frac{m^4}{k^5} + \frac{64i}{5\pi} \frac{m^5}{k^6} + 6 \frac{m^6}{k^7} - \right. \\
& - \frac{768i}{35\pi} \frac{m^7}{k^8} - 6 \frac{m^8}{k^9} + \frac{1024i}{105\pi} \frac{m^9}{k^{10}} + \frac{4096i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \Big) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(-\frac{3}{1024} \frac{1}{k} + \frac{3}{64} \frac{m^2}{k^3} - \frac{9}{32} \frac{m^4}{k^5} + \frac{8i}{5\pi} \frac{m^5}{k^6} + \frac{3}{4} \frac{m^6}{k^7} - \frac{96i}{35\pi} \frac{m^7}{k^8} - \right.
\end{aligned}$$

$$-\frac{3}{4} \frac{m^8}{k^9} + \frac{128i}{105\pi} \frac{m^9}{k^{10}} + \frac{512i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \quad (4.249)$$

$$\begin{aligned} \tilde{T}_{4,4;3D}^{s,t,IR} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi} \left(2 \frac{m^3}{k^4} + \frac{27}{14} \frac{m}{k^2} + \frac{1}{63} \frac{1}{m} + \frac{1}{2772} \frac{k^2}{m^3} + \frac{1}{48048} \frac{k^4}{m^5} + \frac{1}{576576} \frac{k^6}{m^7} + \right. \right. \\ & \left. \left. + \frac{1}{5601024} \frac{k^8}{m^9} + \frac{1}{47297536} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi} \left(-4 \frac{m^3}{k^4} - \frac{12}{7} \frac{m}{k^2} + \frac{1}{21} \frac{1}{m} + \frac{1}{924} \frac{k^2}{m^3} + \frac{1}{16016} \frac{k^4}{m^5} + \right. \right. \\ & \left. \left. + \frac{1}{192192} \frac{k^6}{m^7} + \frac{1}{1867008} \frac{k^8}{m^9} + \frac{3}{47297536} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(2 \frac{m^3}{k^4} - \frac{3}{14} \frac{m}{k^2} + \frac{1}{168} \frac{1}{m} + \frac{1}{7392} \frac{k^2}{m^3} + \frac{1}{128128} \frac{k^4}{m^5} + \right. \right. \\ & \left. \left. + \frac{1}{1537536} \frac{k^6}{m^7} + \frac{1}{14936064} \frac{k^8}{m^9} + \frac{3}{378380288} \frac{k^{10}}{m^{11}} + \dots \right) \right) \quad (4.250) \end{aligned}$$

$$\tilde{T}_{4,4;3D}^{s,UV-IR} = k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi} \left(\frac{4}{7} \frac{m}{k^2} - \frac{16}{3} \frac{m^3}{k^4} \right) \right) + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(-\frac{16i}{5\pi} \frac{m^3}{k^4} \right) + \dots \quad (4.251)$$

Scalars, spin 4 x 4, dimension 4:

$$\begin{aligned} \tilde{T}_{4,4;4D}^{s,t,UV} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\left(\frac{563}{99225} - \frac{P}{630} \right) - \left(-\frac{859}{29400} - \frac{P}{35} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(\frac{511}{1200} - \frac{P}{5} + \frac{L_0}{8} \right) \frac{m^4}{k^4} + \left(-\frac{5}{9} + \frac{2K}{3} \right) \frac{m^6}{k^6} - \left(\frac{1}{12} + K \right) \frac{m^8}{k^8} + \\ & \left. \left. + \left(\frac{137}{150} + \frac{2K}{5} \right) \frac{m^{10}}{k^{10}} + \left(\frac{3}{50} + \frac{2K}{15} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{563}{33075} - \frac{P}{210} \right) + \left(-\frac{352}{1225} + \frac{3P}{35} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(\frac{143}{200} - \frac{3P}{5} + \frac{3L_0}{4} \right) \frac{m^4}{k^4} + \left(-\frac{5}{3} + 2K \right) \frac{m^6}{k^6} - \left(\frac{1}{4} + 3K \right) \frac{m^8}{k^8} + \\ & \left. \left. + \left(\frac{137}{50} + \frac{6K}{5} \right) \frac{m^{10}}{k^{10}} + \left(\frac{9}{50} + \frac{2K}{5} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{563}{264600} - \frac{P}{1680} \right) + \left(-\frac{44}{1225} + \frac{3P}{280} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(\frac{23}{100} - \frac{3P}{40} \right) \frac{m^4}{k^4} + \left(-\frac{5}{24} + \frac{K}{4} \right) \frac{m^6}{k^6} - \left(\frac{1}{32} + \frac{3K}{8} \right) \frac{m^8}{k^8} + \\ & \left. \left. + \left(\frac{137}{400} + \frac{3K}{20} \right) \frac{m^{10}}{k^{10}} + \left(\frac{9}{400} + \frac{K}{20} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \quad (4.252) \end{aligned}$$

$$\tilde{T}_{4,4;4D}^{s,t,IR} = k^8 \pi_{\mu\nu}^4 \left(\frac{i}{10\pi^2} \left(\left(\frac{9}{8} - \frac{3L_0}{4} \right) \frac{m^4}{k^4} + \left(\frac{27}{28} - \frac{27L_0}{28} \right) \frac{m^2}{k^2} - \frac{L_0}{63} + \frac{1}{1386} \frac{k^2}{m^2} + \right. \right.$$

$$\begin{aligned}
& + \frac{1}{36036} \frac{k^4}{m^4} + \frac{1}{540540} \frac{k^6}{m^6} + \frac{1}{6126120} \frac{k^8}{m^8} + \frac{1}{58198140} \frac{k^{10}}{m^{10}} + \\
& + \frac{1}{488864376} \frac{k^{12}}{m^{12}} + \dots \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(-\frac{9}{8} + \frac{3L_0}{4} \right) \frac{m^4}{k^4} + \left(-\frac{3}{7} + \frac{3L_0}{7} \right) \frac{m^2}{k^2} - \frac{L_0}{42} + \right. \right. \\
& + \frac{1}{924} \frac{k^2}{m^2} + \frac{1}{24024} \frac{k^4}{m^4} + \frac{1}{360360} \frac{k^6}{m^6} + \frac{1}{4084080} \frac{k^8}{m^8} + \frac{1}{38798760} \frac{k^{10}}{m^{10}} + \\
& \left. \left. + \frac{1}{325909584} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{40\pi^2} \left(\left(\frac{9}{2} - 3L_0 \right) \frac{m^4}{k^4} + \left(-\frac{3}{7} + \frac{3L_0}{7} \right) \frac{m^2}{k^2} - \frac{L_0}{42} + \frac{1}{924} \frac{k^2}{m^2} + \right. \right. \\
& + \frac{1}{24024} \frac{k^4}{m^4} + \frac{1}{360360} \frac{k^6}{m^6} + \frac{1}{4084080} \frac{k^8}{m^8} + \frac{1}{38798760} \frac{k^{10}}{m^{10}} + \\
& \left. \left. + \frac{1}{325909584} \frac{k^{12}}{m^{12}} + \dots \right) \right) \tag{4.253}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;4D}^{\text{s,UV-IR}} &= k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi^2} \left(\left(\frac{563}{19845} - \frac{K}{126} \right) + \left(-\frac{247}{735} + \frac{K}{7} \right) \frac{m^2}{k^2} + \left(\frac{47}{30} - K \right) \frac{m^4}{k^4} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(\frac{563}{6615} - \frac{K}{42} \right) + \left(-\frac{247}{245} + \frac{3K}{7} \right) \frac{m^2}{k^2} + \right. \right. \\
& \left. \left. + \left(\frac{47}{10} - 3K \right) \frac{m^4}{k^4} \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{40\pi^2} \left(\left(\frac{563}{6615} - \frac{K}{42} \right) + \left(-\frac{247}{245} + \frac{3K}{7} \right) \frac{m^2}{k^2} + \right. \right. \\
& \left. \left. + \left(\frac{47}{10} - 3K \right) \frac{m^4}{k^4} \right) \right) + \dots \tag{4.254}
\end{aligned}$$

Scalars, spin 4 x 4, dimension 5:

$$\begin{aligned}
\tilde{T}_{4,4;5D}^{\text{s,t,UV}} &= k^8 \pi_{\mu\nu}^4 \left(\frac{1}{\pi^2} \left(-\frac{\pi}{10240} k + \frac{\pi}{512} \frac{m^2}{k} - \frac{i}{12} \frac{m^3}{k^2} - \frac{\pi}{64} \frac{m^4}{k^3} + \frac{i}{15} \frac{m^5}{k^4} + \frac{\pi}{16} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{32i}{105} \frac{m^7}{k^6} - \frac{\pi}{8} \frac{m^8}{k^7} + \frac{128i}{315} \frac{m^9}{k^8} + \frac{\pi}{10} \frac{m^{10}}{k^9} - \frac{512i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{3\pi}{10240} k + \frac{3\pi}{512} \frac{m^2}{k} - \frac{3\pi}{64} \frac{m^4}{k^3} + \frac{2i}{5} \frac{m^5}{k^4} + \frac{3\pi}{16} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{32i}{35} \frac{m^7}{k^6} - \frac{3\pi}{8} \frac{m^8}{k^7} + \frac{128i}{105} \frac{m^9}{k^8} + \frac{3\pi}{10} \frac{m^{10}}{k^9} - \frac{512i}{1155} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(-\frac{3\pi}{81920} k + \frac{3\pi}{4096} \frac{m^2}{k} - \frac{3\pi}{512} \frac{m^4}{k^3} + \frac{3\pi}{128} \frac{m^6}{k^5} - \frac{4i}{35} \frac{m^7}{k^6} - \right. \right. \\
& \left. \left. - \frac{3\pi}{64} \frac{m^8}{k^7} + \frac{16i}{105} \frac{m^9}{k^8} + \frac{3\pi}{80} \frac{m^{10}}{k^9} - \frac{64i}{1155} \frac{m^{11}}{k^{10}} + \dots \right) \right) \tag{4.255}
\end{aligned}$$

$$\tilde{T}_{4,4;5D}^{\text{s,t,IR}} = k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi^2} \left(-\frac{1}{5} \frac{m^5}{k^4} - \frac{9}{28} \frac{m^3}{k^2} - \frac{1}{126} m + \frac{1}{5544} \frac{k^2}{m} + \frac{1}{288288} \frac{k^4}{m^3} + \right. \right.$$

$$\begin{aligned}
& + \frac{1}{5765760} \frac{k^6}{m^5} + \frac{1}{78414336} \frac{k^8}{m^7} + \frac{1}{851355648} \frac{k^{10}}{m^9} + \frac{1}{7945986048} \frac{k^{12}}{m^{11}} + \\
& + \dots) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\frac{2}{5} \frac{m^5}{k^4} + \frac{2}{7} \frac{m^3}{k^2} - \frac{1}{42} m + \frac{1}{1848} \frac{k^2}{m} + \frac{1}{96096} \frac{k^4}{m^3} + \right. \right. \\
& + \frac{1}{1921920} \frac{k^6}{m^5} + \frac{1}{26138112} \frac{k^8}{m^7} + \frac{1}{283785216} \frac{k^{10}}{m^9} + \frac{1}{2648662016} \frac{k^{12}}{m^{11}} + \\
& + \dots) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(-\frac{1}{5} \frac{m^5}{k^4} + \frac{1}{28} \frac{m^3}{k^2} - \frac{1}{336} m + \frac{1}{14784} \frac{k^2}{m} + \frac{1}{768768} \frac{k^4}{m^3} + \right. \right. \\
& + \frac{1}{15375360} \frac{k^6}{m^5} + \frac{1}{209104896} \frac{k^8}{m^7} + \frac{1}{2270281728} \frac{k^{10}}{m^9} + \\
& + \left. \left. \frac{1}{21189296128} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.256)
\end{aligned}$$

$$\tilde{T}_{4,4;5D}^{s,t,UV-IR} = k^8 \pi_{\mu\nu}^4 \left(\frac{i}{15\pi^2} \left(-\frac{2}{7} \frac{m^3}{k^2} + \frac{8}{5} \frac{m^5}{k^4} \right) \right) + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{8i}{25\pi^2} \frac{m^5}{k^4} \right) + \dots \quad (4.257)$$

Scalars, spin 4 x 4, dimension 6:

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{s,t,UV} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{2\pi^3} \left(\left(\frac{1627}{12006225} - \frac{P}{27720} \right) k^2 + \left(-\frac{563}{198450} + \frac{P}{1260} \right) m^2 + \right. \right. \\
& + \left(-\frac{5393}{235200} - \frac{P}{140} + \frac{L_0}{32} \right) \frac{m^4}{k^2} - \left(\frac{461}{7200} - \frac{P}{30} + \frac{L_0}{48} \right) \frac{m^6}{k^4} + \\
& + \left(\frac{7}{144} - \frac{K}{12} \right) \frac{m^8}{k^6} + \left(\frac{17}{600} + \frac{K}{10} \right) \frac{m^{10}}{k^8} - \left(\frac{49}{600} + \frac{K}{30} \right) \frac{m^{12}}{k^{10}} + \dots \left. \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{1627}{8004150} - \frac{P}{18480} \right) k^2 + \left(-\frac{563}{132300} + \frac{P}{840} \right) m^2 + \right. \right. \\
& + \left(\frac{44}{1225} - \frac{3P}{280} \right) \frac{m^4}{k^2} - \left(\frac{31}{800} - \frac{P}{20} + \frac{L_0}{16} \right) \frac{m^6}{k^4} + \left(\frac{7}{96} - \frac{K}{8} \right) \frac{m^8}{k^6} + \\
& + \left(\frac{17}{400} + \frac{3K}{20} \right) \frac{m^{10}}{k^8} - \left(\frac{49}{400} + \frac{K}{20} \right) \frac{m^{12}}{k^{10}} + \dots \left. \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{2\pi^3} \left(\left(\frac{1627}{32016600} - \frac{P}{73920} \right) k^2 + \left(-\frac{563}{529200} + \frac{P}{3360} \right) m^2 + \right. \right. \\
& + \left(\frac{11}{1225} - \frac{3P}{1120} \right) \frac{m^4}{k^2} + \left(-\frac{23}{600} + \frac{P}{80} \right) \frac{m^6}{k^4} + \left(\frac{7}{384} - \frac{K}{32} \right) \frac{m^8}{k^6} + \\
& + \left(\frac{17}{1600} + \frac{3K}{80} \right) \frac{m^{10}}{k^8} - \left(\frac{49}{1600} + \frac{K}{80} \right) \frac{m^{12}}{k^{10}} + \dots \left. \right) \quad (4.258)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{s,t,IR} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{40\pi^3} \left(\left(-\frac{11}{24} + \frac{L_0}{4} \right) \frac{m^6}{k^4} + \left(-\frac{81}{112} + \frac{27L_0}{56} \right) \frac{m^4}{k^2} + \left(-\frac{1}{63} + \frac{L_0}{63} \right) m^2 - \right. \right. \\
& - \frac{L_0}{1386} k^2 + \frac{1}{36036} \frac{k^4}{m^2} + \frac{1}{1081080} \frac{k^6}{m^4} + \frac{1}{18378360} \frac{k^8}{m^6} + \frac{1}{232792560} \frac{k^{10}}{m^8} +
\end{aligned}$$

$$\begin{aligned}
& + \frac{1}{2444321880} \frac{k^{12}}{m^{10}} + \frac{1}{22487761296} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{40\pi^3} \left(\left(\frac{11}{12} - \frac{L_0}{2} \right) \frac{m^6}{k^4} + \left(\frac{9}{14} - \frac{3L_0}{7} \right) \frac{m^4}{k^2} + \right. \right. \\
& + \left(-\frac{1}{21} + \frac{L_0}{21} \right) m^2 - \frac{L_0}{462} k^2 + \frac{1}{12012} \frac{k^4}{m^2} + \frac{1}{360360} \frac{k^6}{m^4} + \frac{1}{6126120} \frac{k^8}{m^6} + \\
& + \frac{1}{77597520} \frac{k^{10}}{m^8} + \frac{1}{814773960} \frac{k^{12}}{m^{10}} + \frac{1}{7495920432} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{160\pi^3} \left(\left(-\frac{11}{6} + L_0 \right) \frac{m^6}{k^4} + \left(\frac{9}{28} - \frac{3L_0}{14} \right) \frac{m^4}{k^2} + \right. \right. \\
& + \left(-\frac{1}{42} + \frac{L_0}{42} \right) m^2 - \frac{L_0}{924} k^2 + \frac{1}{24024} \frac{k^4}{m^2} + \frac{1}{720720} \frac{k^6}{m^4} + \\
& + \frac{1}{12252240} \frac{k^8}{m^6} + \frac{1}{155195040} \frac{k^{10}}{m^8} + \frac{1}{1629547920} \frac{k^{12}}{m^{10}} + \\
& + \frac{1}{14991840864} \frac{k^{14}}{m^{12}} + \dots \Big) \Big) \quad (4.259)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{\text{s,UV-IR}} &= k^8 \pi_{\mu\nu}^4 \left(\frac{i}{10\pi^3} \left(\left(\frac{1627}{2401245} - \frac{K}{5544} \right) k^2 + \left(-\frac{811}{79380} + \frac{K}{252} \right) m^2 + \right. \right. \\
& + \left. \left(\frac{389}{5880} - \frac{K}{28} \right) \frac{m^4}{k^2} + \left(-\frac{37}{180} + \frac{K}{6} \right) \frac{m^6}{k^4} \right) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{10\pi^3} \left(\left(\frac{1627}{800415} - \frac{K}{1848} \right) k^2 + \left(-\frac{811}{26460} + \frac{K}{84} \right) m^2 + \right. \right. \\
& + \left. \left(\frac{389}{1960} - \frac{3K}{28} \right) \frac{m^4}{k^2} + \left(-\frac{37}{60} + \frac{K}{2} \right) \frac{m^6}{k^4} \right) \Big) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{80\pi^3} \left(\left(\frac{1627}{800415} - \frac{K}{1848} \right) k^2 + \left(-\frac{811}{26460} + \frac{K}{84} \right) m^2 + \right. \right. \\
& + \left. \left(\frac{389}{1960} - \frac{3K}{28} \right) \frac{m^4}{k^2} + \left(-\frac{37}{60} + \frac{K}{2} \right) \frac{m^6}{k^4} \right) \Big) + \dots \quad (4.260)
\end{aligned}$$

Scalars, spin 5 x 5, dimension 3:

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{\text{s,t,UV}} &= k^{10} \pi_{\mu\nu}^5 \left(\frac{1}{256} \frac{1}{k} - \frac{i}{2\pi} \frac{m}{k^2} - \frac{5}{64} \frac{m^2}{k^3} - \frac{2i}{3\pi} \frac{m^3}{k^4} + \frac{5}{8} \frac{m^4}{k^5} - \frac{64i}{15\pi} \frac{m^5}{k^6} - \frac{5}{2} \frac{m^6}{k^7} + \right. \\
& + \frac{256i}{21\pi} \frac{m^7}{k^8} + 5 \frac{m^8}{k^9} - \frac{1024i}{63\pi} \frac{m^9}{k^{10}} - 4 \frac{m^{10}}{k^{11}} + \frac{4096i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \Big) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{5}{256} \frac{1}{k} - \frac{25}{64} \frac{m^2}{k^3} + \frac{20i}{3\pi} \frac{m^3}{k^4} + \frac{25}{8} \frac{m^4}{k^5} - \frac{64i}{3\pi} \frac{m^5}{k^6} - \frac{25}{2} \frac{m^6}{k^7} + \right. \\
& + \frac{1280i}{21\pi} \frac{m^7}{k^8} + 25 \frac{m^8}{k^9} - \frac{5120i}{63\pi} \frac{m^9}{k^{10}} - 20 \frac{m^{10}}{k^{11}} + \frac{20480i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \Big) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{15}{2048} \frac{1}{k} - \frac{75}{512} \frac{m^2}{k^3} + \frac{75}{64} \frac{m^4}{k^5} - \frac{8i}{\pi} \frac{m^5}{k^6} - \frac{75}{16} \frac{m^6}{k^7} + \frac{160i}{7\pi} \frac{m^7}{k^8} + \right. \\
& + \frac{75}{8} \frac{m^8}{k^9} - \frac{640i}{21\pi} \frac{m^9}{k^{10}} - \frac{15}{2} \frac{m^{10}}{k^{11}} + \frac{2560i}{231\pi} \frac{m^{11}}{k^{12}} + \dots \Big) \quad (4.261)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{\text{s,t,IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi} \left(-\frac{10}{7} \frac{m^3}{k^4} - \frac{55}{126} \frac{m}{k^2} - \frac{1}{693} \frac{1}{m} - \frac{1}{36036} \frac{k^2}{m^3} - \frac{1}{720720} \frac{k^4}{m^5} - \right. \right. \\
& \left. \left. - \frac{1}{9801792} \frac{k^6}{m^7} - \frac{1}{106419456} \frac{k^8}{m^9} - \frac{1}{993248256} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{20}{7} \frac{m^3}{k^4} + \frac{20}{63} \frac{m}{k^2} - \frac{5}{693} \frac{1}{m} - \frac{5}{36036} \frac{k^2}{m^3} - \frac{1}{144144} \frac{k^4}{m^5} - \right. \right. \\
& \left. \left. - \frac{5}{9801792} \frac{k^6}{m^7} - \frac{5}{106419456} \frac{k^8}{m^9} - \frac{5}{993248256} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi} \left(-\frac{10}{7} \frac{m^3}{k^4} + \frac{5}{42} \frac{m}{k^2} - \frac{5}{1848} \frac{1}{m} - \frac{5}{96096} \frac{k^2}{m^3} - \frac{1}{384384} \frac{k^4}{m^5} - \right. \right. \\
& \left. \left. - \frac{5}{26138112} \frac{k^6}{m^7} - \frac{5}{283785216} \frac{k^8}{m^9} - \frac{5}{2648662016} \frac{k^{10}}{m^{11}} + \dots \right) \right) \quad (4.262)
\end{aligned}$$

$$\tilde{T}_{5,5;3D}^{\text{s,UV-IR}} = k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{21\pi} \left(-\frac{4}{3} \frac{m}{k^2} + 16 \frac{m^3}{k^4} \right) \right) + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{80i}{21\pi} \frac{m^3}{k^4} \right) + \dots \quad (4.263)$$

Scalars, spin 5 x 5, dimension 4:

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{\text{s,t,UV}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi^2} \left(\left(-\frac{6508}{2401245} + \frac{P}{1386} \right) + \left(-\frac{10837}{158760} - \frac{P}{63} + \frac{L_0}{8} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{7837}{11760} + \frac{P}{7} + \frac{L_0}{8} \right) \frac{m^4}{k^4} + \left(\frac{37}{45} - \frac{2K}{3} \right) \frac{m^6}{k^6} + \left(-\frac{35}{36} + \frac{5K}{3} \right) \frac{m^8}{k^8} - \\
& \left. - \left(\frac{17}{30} + 2K \right) \frac{m^{10}}{k^{10}} + \left(\frac{49}{30} + \frac{2K}{3} \right) \frac{m^{12}}{k^{12}} + \dots \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{6508}{480249} + \frac{5P}{1386} \right) + \left(\frac{1126}{3969} - \frac{5P}{63} \right) \frac{m^2}{k^2} - \right. \right. \\
& - \left(\frac{611}{1176} - \frac{5P}{7} + \frac{5L_0}{4} \right) \frac{m^4}{k^4} + \left(\frac{37}{9} - \frac{10K}{3} \right) \frac{m^6}{k^6} + \\
& + \left(-\frac{175}{36} + \frac{25K}{3} \right) \frac{m^8}{k^8} - \left(\frac{17}{6} + 10K \right) \frac{m^{10}}{k^{10}} + \left(\frac{49}{6} + \frac{10K}{3} \right) \frac{m^{12}}{k^{12}} + \\
& \left. + \dots \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{1627}{320166} + \frac{5P}{3696} \right) + \left(\frac{563}{5292} - \frac{5P}{168} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{44}{49} + \frac{15P}{56} \right) \frac{m^4}{k^4} + \left(\frac{37}{24} - \frac{5K}{4} \right) \frac{m^6}{k^6} + \left(-\frac{175}{96} + \frac{25K}{8} \right) \frac{m^8}{k^8} - \\
& \left. - \left(\frac{17}{16} + \frac{15K}{4} \right) \frac{m^{10}}{k^{10}} + \left(\frac{49}{16} + \frac{5K}{4} \right) \frac{m^{12}}{k^{12}} + \dots \right) \quad (4.264)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{\text{s,t,IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{14\pi^2} \left(\left(-\frac{45}{8} + \frac{15L_0}{4} \right) \frac{m^4}{k^4} + \left(-\frac{55}{36} + \frac{55L_0}{36} \right) \frac{m^2}{k^2} + \frac{L_0}{99} - \frac{1}{2574} \frac{k^2}{m^2} - \right. \right. \\
& \left. \left. - \frac{1}{77220} \frac{k^4}{m^4} - \frac{1}{1312740} \frac{k^6}{m^6} - \frac{1}{16628040} \frac{k^8}{m^8} - \frac{1}{174594420} \frac{k^{10}}{m^{10}} - \right. \right.
\end{aligned}$$

$$\begin{aligned}
& -\frac{1}{1606268664} \frac{k^{12}}{m^{12}} + \dots \Big) \Big) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^2} \left(\left(\frac{45}{8} - \frac{15L_0}{4} \right) \frac{m^4}{k^4} + \left(\frac{5}{9} - \frac{5L_0}{9} \right) \frac{m^2}{k^2} + \frac{5L_0}{198} - \right. \right. \\
& - \frac{5}{5148} \frac{k^2}{m^2} - \frac{1}{30888} \frac{k^4}{m^4} - \frac{1}{525096} \frac{k^6}{m^6} - \frac{1}{6651216} \frac{k^8}{m^8} - \frac{1}{69837768} \frac{k^{10}}{m^{10}} - \\
& \left. \left. - \frac{5}{3212537328} \frac{k^{12}}{m^{12}} + \dots \right) \right) \Big) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{56\pi^2} \left(\left(-\frac{45}{2} + 15L_0 \right) \frac{m^4}{k^4} + \left(\frac{5}{3} - \frac{5L_0}{3} \right) \frac{m^2}{k^2} + \frac{5L_0}{66} - \right. \right. \\
& - \frac{5}{1716} \frac{k^2}{m^2} - \frac{1}{10296} \frac{k^4}{m^4} - \frac{1}{175032} \frac{k^6}{m^6} - \frac{1}{2217072} \frac{k^8}{m^8} - \frac{1}{23279256} \frac{k^{10}}{m^{10}} - \\
& \left. \left. - \frac{5}{1070845776} \frac{k^{12}}{m^{12}} + \dots \right) \right) \Big) \quad (4.265)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{s,UV-IR} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{7\pi^2} \left(\left(-\frac{6508}{343035} + \frac{K}{198} \right) + \left(\frac{811}{2835} - \frac{K}{9} \right) \frac{m^2}{k^2} + \right. \right. \\
& \left. \left. + \left(-\frac{389}{210} + K \right) \frac{m^4}{k^4} \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^2} \left(\left(-\frac{6508}{68607} + \frac{5K}{198} \right) + \left(\frac{811}{567} - \frac{5K}{9} \right) \frac{m^2}{k^2} + \right. \right. \\
& \left. \left. + \left(-\frac{389}{42} + 5K \right) \frac{m^4}{k^4} \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{14\pi^2} \left(\left(-\frac{1627}{22869} + \frac{5K}{264} \right) + \left(\frac{811}{756} - \frac{5K}{12} \right) \frac{m^2}{k^2} + \right. \right. \\
& \left. \left. + \left(-\frac{389}{56} + \frac{15K}{4} \right) \frac{m^4}{k^4} \right) \right) + \dots \quad (4.266)
\end{aligned}$$

Scalars, spin 5 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{s,t,UV} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{1}{\pi^2} \left(\frac{\pi}{24576} k - \frac{\pi}{1024} \frac{m^2}{k} + \frac{i}{12} \frac{m^3}{k^2} + \frac{5\pi}{512} \frac{m^4}{k^3} + \frac{i}{15} \frac{m^5}{k^4} - \frac{5\pi}{96} \frac{m^6}{k^5} + \right. \right. \\
& \left. \left. + \frac{32i}{105} \frac{m^7}{k^6} + \frac{5\pi}{32} \frac{m^8}{k^7} - \frac{128i}{189} \frac{m^9}{k^8} - \frac{\pi}{4} \frac{m^{10}}{k^9} + \frac{512i}{693} \frac{m^{11}}{k^{10}} + \frac{\pi}{6} \frac{m^{12}}{k^{11}} + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{5\pi}{24576} k - \frac{5\pi}{1024} \frac{m^2}{k} + \frac{25\pi}{512} \frac{m^4}{k^3} - \frac{2i}{3} \frac{m^5}{k^4} - \frac{25\pi}{96} \frac{m^6}{k^5} + \right. \right. \\
& \left. \left. + \frac{32i}{21} \frac{m^7}{k^6} + \frac{25\pi}{32} \frac{m^8}{k^7} - \frac{640i}{189} \frac{m^9}{k^8} - \frac{5\pi}{4} \frac{m^{10}}{k^9} + \frac{2560i}{693} \frac{m^{11}}{k^{10}} + \frac{5\pi}{6} \frac{m^{12}}{k^{11}} + \right. \right. \\
& \left. \left. + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(\frac{5\pi}{65536} k - \frac{15\pi}{8192} \frac{m^2}{k} + \frac{75\pi}{4096} \frac{m^4}{k^3} - \frac{25\pi}{256} \frac{m^6}{k^5} + \frac{4i}{7} \frac{m^7}{k^6} + \right. \right. \\
& \left. \left. + \frac{75\pi}{256} \frac{m^8}{k^7} - \frac{80i}{63} \frac{m^9}{k^8} - \frac{15\pi}{32} \frac{m^{10}}{k^9} + \frac{320i}{231} \frac{m^{11}}{k^{10}} + \frac{5\pi}{16} \frac{m^{12}}{k^{11}} + \dots \right) \right) \quad (4.267)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{s,t,IR} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{7\pi^2} \left(\frac{m^5}{k^4} + \frac{55}{108} \frac{m^3}{k^2} + \frac{1}{198} m - \frac{1}{10296} \frac{k^2}{m} - \frac{1}{617760} \frac{k^4}{m^3} - \right. \right. \\
& - \frac{1}{14002560} \frac{k^6}{m^5} - \frac{1}{212838912} \frac{k^8}{m^7} - \frac{1}{2554066944} \frac{k^{10}}{m^9} - \\
& \left. \left. - \frac{1}{26108239872} \frac{k^{12}}{m^{11}} + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^2} \left(-2 \frac{m^5}{k^4} - \frac{10}{27} \frac{m^3}{k^2} + \frac{5}{198} m - \frac{5}{10296} \frac{k^2}{m} - \frac{1}{123552} \frac{k^4}{m^3} - \right. \right. \\
& - \frac{1}{2800512} \frac{k^6}{m^5} - \frac{5}{212838912} \frac{k^8}{m^7} - \frac{5}{2554066944} \frac{k^{10}}{m^9} - \frac{5}{26108239872} \frac{k^{12}}{m^{11}} + \\
& \left. \left. + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{7\pi^2} \left(\frac{m^5}{k^4} - \frac{5}{36} \frac{m^3}{k^2} + \frac{5}{528} m - \frac{5}{27456} \frac{k^2}{m} - \frac{1}{329472} \frac{k^4}{m^3} - \right. \right. \\
& - \frac{1}{7468032} \frac{k^6}{m^5} - \frac{5}{567570432} \frac{k^8}{m^7} - \frac{5}{6810845184} \frac{k^{10}}{m^9} - \frac{5}{69621972992} \frac{k^{12}}{m^{11}} + \\
& \left. \left. + \dots \right) \right) \quad (4.268)
\end{aligned}$$

$$\tilde{T}_{5,5;5D}^{s,UV-IR} = k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{21\pi^2} \left(\frac{2}{9} \frac{m^3}{k^2} - \frac{8}{5} \frac{m^5}{k^4} \right) \right) + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(-\frac{8i}{21\pi^2} \frac{m^5}{k^4} \right) + \dots \quad (4.269)$$

Scalars, spin 5 x 5, dimension 6:

$$\begin{aligned}
\tilde{T}_{5,5;6D}^{s,t,UV} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi^3} \left(\left(-\frac{88069}{3246483240} + \frac{P}{144144} \right) k^2 + \left(\frac{1627}{2401245} - \frac{P}{5544} \right) m^2 - \right. \right. \\
& - \left(-\frac{41519}{2540160} - \frac{P}{504} + \frac{L_0}{64} \right) \frac{m^4}{k^2} - \left(-\frac{8327}{141120} + \frac{P}{84} + \frac{L_0}{96} \right) \frac{m^6}{k^4} + \\
& + \left(-\frac{59}{1440} + \frac{K}{24} \right) \frac{m^8}{k^6} + \left(\frac{23}{720} - \frac{K}{12} \right) \frac{m^{10}}{k^8} + \left(\frac{3}{80} + \frac{K}{12} \right) \frac{m^{12}}{k^{10}} + \\
& \left. \left. + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{88069}{649296648} + \frac{5P}{144144} \right) k^2 + \right. \right. \\
& + \left(\frac{1627}{480249} - \frac{5P}{5544} \right) m^2 + \left(-\frac{563}{15876} + \frac{5P}{504} \right) \frac{m^4}{k^2} + \\
& + \left(\frac{121}{14112} - \frac{5P}{84} + \frac{5L_0}{48} \right) \frac{m^6}{k^4} + \left(-\frac{59}{288} + \frac{5K}{24} \right) \frac{m^8}{k^6} + \\
& + \left(\frac{23}{144} - \frac{5K}{12} \right) \frac{m^{10}}{k^8} + \left(\frac{3}{16} + \frac{5K}{12} \right) \frac{m^{12}}{k^{10}} + \dots \left. \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(-\frac{88069}{1731457728} + \frac{5P}{384384} \right) k^2 + \right. \right. \\
& + \left(\frac{1627}{1280664} - \frac{5P}{14784} \right) m^2 + \left(-\frac{563}{42336} + \frac{5P}{1344} \right) \frac{m^4}{k^2} + \\
& + \left(\frac{11}{147} - \frac{5P}{224} \right) \frac{m^6}{k^4} + \left(-\frac{59}{768} + \frac{5K}{64} \right) \frac{m^8}{k^6} + \left(\frac{23}{384} - \frac{5K}{32} \right) \frac{m^{10}}{k^8} + \\
& \left. \left. + \dots \right) \right)
\end{aligned}$$

$$+ \left(\frac{9}{128} + \frac{5K}{32} \right) \frac{m^{12}}{k^{10}} + \dots \Big) \Big) \quad (4.270)$$

$$\begin{aligned} \tilde{T}_{5,5;6D}^{\text{s,t,IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{56\pi^3} \left(\left(\frac{55}{24} - \frac{5L_0}{4} \right) \frac{m^6}{k^4} + \left(\frac{55}{48} - \frac{55L_0}{72} \right) \frac{m^4}{k^2} + \left(\frac{1}{99} - \frac{L_0}{99} \right) m^2 + \right. \right. \\ & + \frac{L_0}{2574} k^2 - \frac{1}{77220} \frac{k^4}{m^2} - \frac{1}{2625480} \frac{k^6}{m^4} - \frac{1}{49884120} \frac{k^8}{m^6} - \frac{1}{698377680} \frac{k^{10}}{m^8} - \\ & \left. \left. - \frac{1}{8031343320} \frac{k^{12}}{m^{10}} - \frac{1}{80313433200} \frac{k^{14}}{m^{12}} + \dots \right) \right) + \\ & + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{56\pi^3} \left(\left(-\frac{55}{12} + \frac{5L_0}{2} \right) \frac{m^6}{k^4} + \left(-\frac{5}{6} + \frac{5L_0}{9} \right) \frac{m^4}{k^2} + \right. \right. \\ & + \left(\frac{5}{99} - \frac{5L_0}{99} \right) m^2 + \frac{5L_0}{2574} k^2 - \frac{1}{15444} \frac{k^4}{m^2} - \frac{1}{525096} \frac{k^6}{m^4} - \frac{1}{9976824} \frac{k^8}{m^6} - \\ & \left. \left. - \frac{1}{139675536} \frac{k^{10}}{m^8} - \frac{1}{1606268664} \frac{k^{12}}{m^{10}} - \frac{1}{16062686640} \frac{k^{14}}{m^{12}} + \dots \right) \right) + \\ & + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{224\pi^3} \left(\left(\frac{55}{6} - 5L_0 \right) \frac{m^6}{k^4} + \left(-\frac{5}{4} + \frac{5L_0}{6} \right) \frac{m^4}{k^2} + \right. \right. \\ & + \left(\frac{5}{66} - \frac{5L_0}{66} \right) m^2 + \frac{5L_0}{1716} k^2 - \frac{1}{10296} \frac{k^4}{m^2} - \frac{1}{350064} \frac{k^6}{m^4} - \frac{1}{6651216} \frac{k^8}{m^6} - \\ & \left. \left. - \frac{1}{93117024} \frac{k^{10}}{m^8} - \frac{1}{1070845776} \frac{k^{12}}{m^{10}} - \frac{1}{10708457760} \frac{k^{14}}{m^{12}} + \dots \right) \right) \quad (4.271) \end{aligned}$$

$$\begin{aligned} \tilde{T}_{5,5;6D}^{\text{s,UV-IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{84\pi^3} \left(\left(-\frac{88069}{38648610} + \frac{K}{1716} \right) k^2 + \left(\frac{9551}{228690} - \frac{K}{66} \right) m^2 + \right. \right. \\ & + \left(-\frac{1307}{3780} + \frac{K}{6} \right) \frac{m^4}{k^2} + \left(\frac{319}{210} - K \right) \frac{m^6}{k^4} \Big) \Big) + \\ & + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{84\pi^3} \left(\left(-\frac{88069}{7729722} + \frac{5K}{1716} \right) k^2 + \left(\frac{9551}{45738} - \frac{5K}{66} \right) m^2 + \right. \right. \\ & + \left(-\frac{1307}{756} + \frac{5K}{6} \right) \frac{m^4}{k^2} + \left(\frac{319}{42} - 5K \right) \frac{m^6}{k^4} \Big) \Big) + \\ & + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{224\pi^3} \left(\left(-\frac{88069}{7729722} + \frac{5K}{1716} \right) k^2 + \left(\frac{9551}{45738} - \frac{5K}{66} \right) m^2 + \right. \right. \\ & + \left(-\frac{1307}{756} + \frac{5K}{6} \right) \frac{m^4}{k^2} + \left(\frac{319}{42} - 5K \right) \frac{m^6}{k^4} \Big) \Big) + \dots \quad (4.272) \end{aligned}$$

4.3.3 Divergences of the scalar amplitudes

Scalars, spin 0 x 2:

$$\tilde{T}_{0,2;3D}^{\text{s,nt}} \cdot k = k_\nu \left(\frac{i}{2\pi} m \right) \quad (4.273)$$

$$\tilde{T}_{0,2;4D}^{\text{s,nt}} \cdot k = k_\nu \left(-\frac{iL_1}{8\pi^2} m^2 \right) \quad (4.274)$$

$$\tilde{T}_{0,2;5D}^{s,nt} \cdot k = k_\nu \left(-\frac{i}{12\pi^2} m^3 \right) \quad (4.275)$$

$$\tilde{T}_{0,2;6D}^{s,nt} \cdot k = k_\nu \left(\frac{iL_2}{64\pi^3} m^4 \right) \quad (4.276)$$

Scalars, spin 0 x 4:

$$\tilde{T}_{0,4;3D}^{s,nt} \cdot k = k_\nu^3 \left(\frac{i}{2\pi} m \right) + k_\nu \eta_{\nu\nu} \left(\frac{2i}{\pi} m^3 \right) \quad (4.277)$$

$$\tilde{T}_{0,4;4D}^{s,nt} \cdot k = k_\nu^3 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\nu \eta_{\nu\nu} \left(-\frac{3iL_2}{8\pi^2} m^4 \right) \quad (4.278)$$

$$\tilde{T}_{0,4;5D}^{s,nt} \cdot k = k_\nu^3 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\nu \eta_{\nu\nu} \left(-\frac{i}{5\pi^2} m^5 \right) \quad (4.279)$$

$$\tilde{T}_{0,4;6D}^{s,nt} \cdot k = k_\nu^3 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\nu \eta_{\nu\nu} \left(\frac{iL_3}{32\pi^3} m^6 \right) \quad (4.280)$$

Scalars, spin 1 x 1:

$$k \cdot \tilde{T}_{1,1;3D}^{s,nt} = k_\nu \left(\frac{i}{2\pi} m \right) \quad (4.281)$$

$$k \cdot \tilde{T}_{1,1;4D}^{s,nt} = k_\nu \left(-\frac{iL_1}{8\pi^2} m^2 \right) \quad (4.282)$$

$$k \cdot \tilde{T}_{1,1;5D}^{s,nt} = k_\nu \left(-\frac{i}{12\pi^2} m^3 \right) \quad (4.283)$$

$$k \cdot \tilde{T}_{1,1;6D}^{s,nt} = k_\nu \left(\frac{iL_2}{64\pi^3} m^4 \right) \quad (4.284)$$

Scalars, spin 1 x 3:

$$k \cdot \tilde{T}_{1,3;3D}^{s,nt} = k_\nu^3 \left(\frac{i}{2\pi} m \right) + k_\nu \eta_{\nu\nu} \left(\frac{2i}{\pi} m^3 \right) \quad (4.285)$$

$$\tilde{T}_{1,3;3D}^{s,nt} \cdot k = k_\mu k_\nu^2 \left(\frac{i}{2\pi} m \right) + k_\mu \eta_{\nu\nu} \left(\frac{2i}{3\pi} m^3 \right) + k_\nu \eta_{\mu\nu} \left(\frac{4i}{3\pi} m^3 \right) \quad (4.286)$$

$$k \cdot \tilde{T}_{1,3;4D}^{s,nt} = k_\nu^3 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\nu \eta_{\nu\nu} \left(-\frac{3iL_2}{8\pi^2} m^4 \right) \quad (4.287)$$

$$\tilde{T}_{1,3;4D}^{s,nt} \cdot k = k_\mu k_\nu^2 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu \eta_{\nu\nu} \left(-\frac{iL_2}{8\pi^2} m^4 \right) + k_\nu \eta_{\mu\nu} \left(-\frac{iL_2}{4\pi^2} m^4 \right) \quad (4.288)$$

$$k \cdot \tilde{T}_{1,3;5D}^{s,nt} = k_\nu^3 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\nu \eta_{\nu\nu} \left(-\frac{i}{5\pi^2} m^5 \right) \quad (4.289)$$

$$\tilde{T}_{1,3;5D}^{s,nt} \cdot k = k_\mu k_\nu^2 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu \eta_{\nu\nu} \left(-\frac{i}{15\pi^2} m^5 \right) + k_\nu \eta_{\mu\nu} \left(-\frac{2i}{15\pi^2} m^5 \right) \quad (4.290)$$

$$k \cdot \tilde{T}_{1,3;6D}^{s,nt} = k_\nu^3 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\nu \eta_{\nu\nu} \left(\frac{iL_3}{32\pi^3} m^6 \right) \quad (4.291)$$

$$\tilde{T}_{1,3;6D}^{s,nt} \cdot k = k_\mu k_\nu^2 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu \eta_{\nu\nu} \left(\frac{iL_3}{96\pi^3} m^6 \right) + k_\nu \eta_{\mu\nu} \left(\frac{iL_3}{48\pi^3} m^6 \right) \quad (4.292)$$

Scalars, spin 1 x 5:

$$k \cdot \tilde{T}_{1,5;3D}^{s,nt} = k_\nu^5 \left(\frac{i}{2\pi} m \right) + k_\nu^3 \eta_{\nu\nu} \left(\frac{20i}{3\pi} m^3 \right) + k_\nu \eta_{\nu\nu}^2 \left(\frac{8i}{\pi} m^5 \right) \quad (4.293)$$

$$\begin{aligned} \tilde{T}_{1,5;3D}^{s,nt} \cdot k &= k_\mu k_\nu^4 \left(\frac{i}{2\pi} m \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{4i}{\pi} m^3 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{8i}{3\pi} m^3 \right) + k_\mu \eta_{\nu\nu}^2 \left(\frac{8i}{5\pi} m^5 \right) + \\ &+ k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{32i}{5\pi} m^5 \right) \end{aligned} \quad (4.294)$$

$$k \cdot \tilde{T}_{1,5;4D}^{s,nt} = k_\nu^5 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\nu^3 \eta_{\nu\nu} \left(-\frac{5iL_2}{4\pi^2} m^4 \right) + k_\nu \eta_{\nu\nu}^2 \left(-\frac{5iL_3}{4\pi^2} m^6 \right) \quad (4.295)$$

$$\begin{aligned} \tilde{T}_{1,5;4D}^{s,nt} \cdot k &= k_\mu k_\nu^4 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{iL_2}{2\pi^2} m^4 \right) + \\ &+ k_\mu \eta_{\nu\nu}^2 \left(-\frac{iL_3}{4\pi^2} m^6 \right) + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{iL_3}{\pi^2} m^6 \right) \end{aligned} \quad (4.296)$$

$$k \cdot \tilde{T}_{1,5;5D}^{s,nt} = k_\nu^5 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\nu^3 \eta_{\nu\nu} \left(-\frac{2i}{3\pi^2} m^5 \right) + k_\nu \eta_{\nu\nu}^2 \left(-\frac{4i}{7\pi^2} m^7 \right) \quad (4.297)$$

$$\begin{aligned} \tilde{T}_{1,5;5D}^{s,nt} \cdot k &= k_\mu k_\nu^4 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{4i}{15\pi^2} m^5 \right) + \\ &+ k_\mu \eta_{\nu\nu}^2 \left(-\frac{4i}{35\pi^2} m^7 \right) + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{16i}{35\pi^2} m^7 \right) \end{aligned} \quad (4.298)$$

$$k \cdot \tilde{T}_{1,5;6D}^{s,nt} = k_\nu^5 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\nu^3 \eta_{\nu\nu} \left(\frac{5iL_3}{48\pi^3} m^6 \right) + k_\nu \eta_{\nu\nu}^2 \left(\frac{5iL_4}{64\pi^3} m^8 \right) \quad (4.299)$$

$$\begin{aligned}\tilde{T}_{1,5;6D}^{s,nt} \cdot k &= k_\mu k_\nu^4 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_3}{24\pi^3} m^6 \right) + \\ &+ k_\mu \eta_{\nu\nu}^2 \left(\frac{iL_4}{64\pi^3} m^8 \right) + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{iL_4}{16\pi^3} m^8 \right)\end{aligned}\quad (4.300)$$

Scalars, spin 2 x 2:

$$k \cdot \tilde{T}_{2,2;3D}^{s,nt} = k_\mu k_\nu^2 \left(\frac{i}{2\pi} m \right) + k_\mu \eta_{\nu\nu} \left(\frac{2i}{3\pi} m^3 \right) + k_\nu \eta_{\mu\nu} \left(\frac{4i}{3\pi} m^3 \right) \quad (4.301)$$

$$k \cdot \tilde{T}_{2,2;4D}^{s,nt} = k_\mu k_\nu^2 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu \eta_{\nu\nu} \left(-\frac{iL_2}{8\pi^2} m^4 \right) + k_\nu \eta_{\mu\nu} \left(-\frac{iL_2}{4\pi^2} m^4 \right) \quad (4.302)$$

$$k \cdot \tilde{T}_{2,2;5D}^{s,nt} = k_\mu k_\nu^2 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu \eta_{\nu\nu} \left(-\frac{i}{15\pi^2} m^5 \right) + k_\nu \eta_{\mu\nu} \left(-\frac{2i}{15\pi^2} m^5 \right) \quad (4.303)$$

$$k \cdot \tilde{T}_{2,2;6D}^{s,nt} = k_\mu k_\nu^2 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu \eta_{\nu\nu} \left(\frac{iL_3}{96\pi^3} m^6 \right) + k_\nu \eta_{\mu\nu} \left(\frac{iL_3}{48\pi^3} m^6 \right) \quad (4.304)$$

Scalars, spin 2 x 4:

$$\begin{aligned}k \cdot \tilde{T}_{2,4;3D}^{s,nt} &= k_\mu k_\nu^4 \left(\frac{i}{2\pi} m \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{4i}{\pi} m^3 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{8i}{3\pi} m^3 \right) + k_\mu \eta_{\nu\nu}^2 \left(\frac{8i}{5\pi} m^5 \right) + \\ &+ k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{32i}{5\pi} m^5 \right)\end{aligned}\quad (4.305)$$

$$\begin{aligned}\tilde{T}_{2,4;3D}^{s,nt} \cdot k &= k_\mu^2 k_\nu^3 \left(\frac{i}{2\pi} m \right) + k_\nu^3 \eta_{\mu\mu} \left(\frac{2i}{3\pi} m^3 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(\frac{2i}{\pi} m^3 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \left(\frac{4i}{\pi} m^3 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{8i}{5\pi} m^5 \right) + (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{16i}{5\pi} m^5 \right)\end{aligned}\quad (4.306)$$

$$\begin{aligned}k \cdot \tilde{T}_{2,4;4D}^{s,nt} &= k_\mu k_\nu^4 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{iL_2}{2\pi^2} m^4 \right) + \\ &+ k_\mu \eta_{\nu\nu}^2 \left(-\frac{iL_3}{4\pi^2} m^6 \right) + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{iL_3}{\pi^2} m^6 \right)\end{aligned}\quad (4.307)$$

$$\begin{aligned}\tilde{T}_{2,4;4D}^{s,nt} \cdot k &= k_\mu^2 k_\nu^3 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\nu^3 \eta_{\mu\mu} \left(-\frac{iL_2}{8\pi^2} m^4 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(-\frac{3iL_2}{8\pi^2} m^4 \right) + \\ &+ k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_3}{4\pi^2} m^6 \right) + \\ &+ (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{2\pi^2} m^6 \right)\end{aligned}\quad (4.308)$$

$$k \cdot \tilde{T}_{2,4;5D}^{s,nt} = k_\mu k_\nu^4 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{4i}{15\pi^2} m^5 \right) +$$

$$+ k_\mu \eta_{\nu\nu}^2 \left(-\frac{4i}{35\pi^2} m^7 \right) + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{16i}{35\pi^2} m^7 \right) \quad (4.309)$$

$$\begin{aligned} \tilde{T}_{2,4;5D}^{s,nt} \cdot k &= k_\mu^2 k_\nu^3 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\nu^3 \eta_{\mu\mu} \left(-\frac{i}{15\pi^2} m^5 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(-\frac{i}{5\pi^2} m^5 \right) + \\ &+ k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{4i}{35\pi^2} m^7 \right) + \\ &+ (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{8i}{35\pi^2} m^7 \right) \end{aligned} \quad (4.310)$$

$$\begin{aligned} k \cdot \tilde{T}_{2,4;6D}^{s,nt} &= k_\mu k_\nu^4 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_3}{24\pi^3} m^6 \right) + \\ &+ k_\mu \eta_{\nu\nu}^2 \left(\frac{iL_4}{64\pi^3} m^8 \right) + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{iL_4}{16\pi^3} m^8 \right) \end{aligned} \quad (4.311)$$

$$\begin{aligned} \tilde{T}_{2,4;6D}^{s,nt} \cdot k &= k_\mu^2 k_\nu^3 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\nu^3 \eta_{\mu\mu} \left(\frac{iL_3}{96\pi^3} m^6 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(\frac{iL_3}{32\pi^3} m^6 \right) + \\ &+ k_\mu k_\nu^2 \eta_{\mu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_4}{64\pi^3} m^8 \right) + \\ &+ (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_4}{32\pi^3} m^8 \right) \end{aligned} \quad (4.312)$$

Scalars, spin 3 x 3:

$$\begin{aligned} k \cdot \tilde{T}_{3,3;3D}^{s,nt} &= k_\mu^2 k_\nu^3 \left(\frac{i}{2\pi} m \right) + k_\nu^3 \eta_{\mu\mu} \left(\frac{2i}{3\pi} m^3 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(\frac{2i}{\pi} m^3 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \left(\frac{4i}{\pi} m^3 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{8i}{5\pi} m^5 \right) + (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{16i}{5\pi} m^5 \right) \end{aligned} \quad (4.313)$$

$$\begin{aligned} k \cdot \tilde{T}_{3,3;4D}^{s,nt} &= k_\mu^2 k_\nu^3 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\nu^3 \eta_{\mu\mu} \left(-\frac{iL_2}{8\pi^2} m^4 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(-\frac{3iL_2}{8\pi^2} m^4 \right) + \\ &+ k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_3}{4\pi^2} m^6 \right) + \\ &+ (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{2\pi^2} m^6 \right) \end{aligned} \quad (4.314)$$

$$\begin{aligned} k \cdot \tilde{T}_{3,3;5D}^{s,nt} &= k_\mu^2 k_\nu^3 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\nu^3 \eta_{\mu\mu} \left(-\frac{i}{15\pi^2} m^5 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(-\frac{i}{5\pi^2} m^5 \right) + \\ &+ k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{4i}{35\pi^2} m^7 \right) + \\ &+ (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{8i}{35\pi^2} m^7 \right) \end{aligned} \quad (4.315)$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,3;6D}^{\text{s,nt}} &= k_\mu^2 k_\nu^3 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\nu^3 \eta_{\mu\mu} \left(\frac{iL_3}{96\pi^3} m^6 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(\frac{iL_3}{32\pi^3} m^6 \right) + \\
&+ k_\mu k_\nu^2 \eta_{\mu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_4}{64\pi^3} m^8 \right) + \\
&+ (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_4}{32\pi^3} m^8 \right)
\end{aligned} \tag{4.316}$$

Scalars, spin 3 x 5:

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;3D}^{\text{s,nt}} &= k_\mu^2 k_\nu^5 \left(\frac{i}{2\pi} m \right) + k_\nu^5 \eta_{\mu\mu} \left(\frac{2i}{3\pi} m^3 \right) + (k_\mu k_\nu^4 \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\nu\nu}) \left(\frac{20i}{3\pi} m^3 \right) + \\
&+ k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{16i}{3\pi} m^5 \right) + k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(\frac{8i}{\pi} m^5 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{32i}{\pi} m^5 \right) + \\
&+ k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{32i}{3\pi} m^5 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{32i}{7\pi} m^7 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{64i}{7\pi} m^7 \right) + \\
&+ k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{128i}{7\pi} m^7 \right)
\end{aligned} \tag{4.317}$$

$$\begin{aligned}
\tilde{T}_{3,5;3D}^{\text{s,nt}} \cdot k &= k_\mu^3 k_\nu^4 \left(\frac{i}{2\pi} m \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(\frac{2i}{\pi} m^3 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{4i}{\pi} m^3 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(\frac{8i}{\pi} m^3 \right) + \\
&+ k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{48i}{5\pi} m^5 \right) + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{8i}{5\pi} m^5 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{32i}{5\pi} m^5 \right) + \\
&+ (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{96i}{5\pi} m^5 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{96i}{35\pi} m^7 \right) + \\
&+ (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{384i}{35\pi} m^7 \right) + k_\nu \eta_{\mu\nu}^3 \left(\frac{256i}{35\pi} m^7 \right)
\end{aligned} \tag{4.318}$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;4D}^{\text{s,nt}} &= k_\mu^2 k_\nu^5 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\nu^5 \eta_{\mu\mu} \left(-\frac{iL_2}{8\pi^2} m^4 \right) + \\
&+ (k_\mu k_\nu^4 \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\nu\nu}) \left(-\frac{5iL_2}{4\pi^2} m^4 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{5iL_3}{6\pi^2} m^6 \right) + \\
&+ k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(-\frac{5iL_3}{4\pi^2} m^6 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{5iL_3}{\pi^2} m^6 \right) + \\
&+ k_\nu^3 \eta_{\mu\nu}^2 \left(-\frac{5iL_3}{3\pi^2} m^6 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{5iL_4}{8\pi^2} m^8 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{5iL_4}{4\pi^2} m^8 \right) + \\
&+ k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{5iL_4}{2\pi^2} m^8 \right)
\end{aligned} \tag{4.319}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{s,nt}} \cdot k &= k_\mu^3 k_\nu^4 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(-\frac{3iL_2}{8\pi^2} m^4 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + \\
&+ k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(-\frac{3iL_2}{2\pi^2} m^4 \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{3iL_3}{2\pi^2} m^6 \right) + \\
&+ k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{iL_3}{4\pi^2} m^6 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{iL_3}{\pi^2} m^6 \right) +
\end{aligned}$$

$$\begin{aligned}
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{3iL_3}{\pi^2} m^6 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{3iL_4}{8\pi^2} m^8 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{3iL_4}{2\pi^2} m^8 \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{iL_4}{\pi^2} m^8 \right) \quad (4.320)
\end{aligned}$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;5D}^{s,nt} &= k_\mu^2 k_\nu^5 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\nu^5 \eta_{\mu\mu} \left(-\frac{i}{15\pi^2} m^5 \right) + \\
& + (k_\mu k_\nu^4 \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\nu\nu}) \left(-\frac{2i}{3\pi^2} m^5 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{8i}{21\pi^2} m^7 \right) + \\
& + k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(-\frac{4i}{7\pi^2} m^7 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{16i}{7\pi^2} m^7 \right) + k_\nu^3 \eta_{\mu\nu}^2 \left(-\frac{16i}{21\pi^2} m^7 \right) + \\
& + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{16i}{63\pi^2} m^9 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{32i}{63\pi^2} m^9 \right) + \\
& + k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{64i}{63\pi^2} m^9 \right) \quad (4.321)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{s,nt} \cdot k &= k_\mu^3 k_\nu^4 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(-\frac{i}{5\pi^2} m^5 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + \\
& + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(-\frac{4i}{5\pi^2} m^5 \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{24i}{35\pi^2} m^7 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{4i}{35\pi^2} m^7 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{16i}{35\pi^2} m^7 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{48i}{35\pi^2} m^7 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{16i}{105\pi^2} m^9 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{64i}{105\pi^2} m^9 \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{128i}{315\pi^2} m^9 \right) \quad (4.322)
\end{aligned}$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;6D}^{s,nt} &= k_\mu^2 k_\nu^5 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\nu^5 \eta_{\mu\mu} \left(\frac{iL_3}{96\pi^3} m^6 \right) + (k_\mu k_\nu^4 \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\nu\nu}) \left(\frac{5iL_3}{48\pi^3} m^6 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{5iL_4}{96\pi^3} m^8 \right) + k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(\frac{5iL_4}{64\pi^3} m^8 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{5iL_4}{16\pi^3} m^8 \right) + \\
& + k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{5iL_4}{48\pi^3} m^8 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{iL_5}{32\pi^3} m^{10} \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{iL_5}{16\pi^3} m^{10} \right) + \\
& + k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{iL_5}{8\pi^3} m^{10} \right) \quad (4.323)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{s,nt} \cdot k &= k_\mu^3 k_\nu^4 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(\frac{iL_3}{32\pi^3} m^6 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + \\
& + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_3}{8\pi^3} m^6 \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{3iL_4}{32\pi^3} m^8 \right) + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{iL_4}{64\pi^3} m^8 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{iL_4}{16\pi^3} m^8 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{3iL_4}{16\pi^3} m^8 \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{3iL_5}{160\pi^3} m^{10} \right) + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{3iL_5}{40\pi^3} m^{10} \right) + \\
& + k_\nu \eta_{\mu\nu}^3 \left(\frac{iL_5}{20\pi^3} m^{10} \right)
\end{aligned} \tag{4.324}$$

Scalars, spin 4 x 4:

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;3D}^{\text{s,nt}} &= k_\mu^3 k_\nu^4 \left(\frac{i}{2\pi} m \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(\frac{2i}{\pi} m^3 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{4i}{\pi} m^3 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(\frac{8i}{\pi} m^3 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{48i}{5\pi} m^5 \right) + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{8i}{5\pi} m^5 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{32i}{5\pi} m^5 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{96i}{5\pi} m^5 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{96i}{35\pi} m^7 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{384i}{35\pi} m^7 \right) + k_\nu \eta_{\mu\nu}^3 \left(\frac{256i}{35\pi} m^7 \right)
\end{aligned} \tag{4.325}$$

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;4D}^{\text{s,nt}} &= k_\mu^3 k_\nu^4 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(-\frac{3iL_2}{8\pi^2} m^4 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + \\
& + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(-\frac{3iL_2}{2\pi^2} m^4 \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{3iL_3}{2\pi^2} m^6 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{iL_3}{4\pi^2} m^6 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{iL_3}{\pi^2} m^6 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{3iL_3}{\pi^2} m^6 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{3iL_4}{8\pi^2} m^8 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{3iL_4}{2\pi^2} m^8 \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{iL_4}{\pi^2} m^8 \right)
\end{aligned} \tag{4.326}$$

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;5D}^{\text{s,nt}} &= k_\mu^3 k_\nu^4 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(-\frac{i}{5\pi^2} m^5 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{2i}{5\pi^2} m^5 \right) + \\
& + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(-\frac{4i}{5\pi^2} m^5 \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{24i}{35\pi^2} m^7 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{4i}{35\pi^2} m^7 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{16i}{35\pi^2} m^7 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{48i}{35\pi^2} m^7 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{16i}{105\pi^2} m^9 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{64i}{105\pi^2} m^9 \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{128i}{315\pi^2} m^9 \right)
\end{aligned} \tag{4.327}$$

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;6D}^{\text{s,nt}} &= k_\mu^3 k_\nu^4 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu k_\nu^4 \eta_{\mu\mu} \left(\frac{iL_3}{32\pi^3} m^6 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + \\
& + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_3}{8\pi^3} m^6 \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{3iL_4}{32\pi^3} m^8 \right) + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{iL_4}{64\pi^3} m^8 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{iL_4}{16\pi^3} m^8 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{3iL_4}{16\pi^3} m^8 \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{3iL_5}{160\pi^3} m^{10} \right) + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{3iL_5}{40\pi^3} m^{10} \right) + \\
& + k_\nu \eta_{\mu\nu}^3 \left(\frac{iL_5}{20\pi^3} m^{10} \right)
\end{aligned} \tag{4.328}$$

Scalars, spin 5 x 5:

$$\begin{aligned}
k \cdot \tilde{T}_{5,5;3D}^{s,nt} = & k_\mu^4 k_\nu^5 \left(\frac{i}{2\pi} m \right) + k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(\frac{4i}{\pi} m^3 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(\frac{20i}{3\pi} m^3 \right) + \\
& + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(\frac{40i}{3\pi} m^3 \right) + k_\nu^5 \eta_{\mu\mu}^2 \left(\frac{8i}{5\pi} m^5 \right) + k_\mu^4 k_\nu \eta_{\nu\nu}^2 \left(\frac{8i}{\pi} m^5 \right) + \\
& + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{32i}{\pi} m^5 \right) + \\
& + (k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2 + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{64i}{\pi} m^5 \right) + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(\frac{64i}{7\pi} m^7 \right) + \\
& + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{192i}{7\pi} m^7 \right) + (k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{768i}{7\pi} m^7 \right) + \\
& + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{128i}{7\pi} m^7 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(\frac{256i}{7\pi} m^7 \right) + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{512i}{7\pi} m^7 \right) + \\
& + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{128i}{21\pi} m^9 \right) + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{512i}{21\pi} m^9 \right) + \\
& + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{1024i}{21\pi} m^9 \right) + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{2048i}{63\pi} m^9 \right) + k_\nu \eta_{\mu\nu}^4 \left(\frac{1024i}{63\pi} m^9 \right)
\end{aligned} \tag{4.329}$$

$$\begin{aligned}
k \cdot \tilde{T}_{5,5;4D}^{s,nt} = & k_\mu^4 k_\nu^5 \left(-\frac{iL_1}{8\pi^2} m^2 \right) + k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(-\frac{5iL_2}{4\pi^2} m^4 \right) + \\
& + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(-\frac{5iL_2}{2\pi^2} m^4 \right) + k_\nu^5 \eta_{\mu\mu}^2 \left(-\frac{iL_3}{4\pi^2} m^6 \right) + k_\mu^4 k_\nu \eta_{\nu\nu}^2 \left(-\frac{5iL_3}{4\pi^2} m^6 \right) + \\
& + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{5iL_3}{\pi^2} m^6 \right) + \\
& + (k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2 + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{10iL_3}{\pi^2} m^6 \right) + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(-\frac{5iL_4}{4\pi^2} m^8 \right) + \\
& + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{15iL_4}{4\pi^2} m^8 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{15iL_4}{\pi^2} m^8 \right) + \\
& + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{5iL_4}{2\pi^2} m^8 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(-\frac{5iL_4}{\pi^2} m^8 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(-\frac{10iL_4}{\pi^2} m^8 \right) + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(-\frac{3iL_5}{4\pi^2} m^{10} \right) + \\
& + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{3iL_5}{\pi^2} m^{10} \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{6iL_5}{\pi^2} m^{10} \right) +
\end{aligned}$$

$$+ k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(-\frac{4iL_5}{\pi^2} m^{10} \right) + k_\nu \eta_{\mu\nu}^4 \left(-\frac{2iL_5}{\pi^2} m^{10} \right) \quad (4.330)$$

$$\begin{aligned} k \cdot \tilde{T}_{5,5;5D}^{\text{s,nt}} = & k_\mu^4 k_\nu^5 \left(-\frac{i}{12\pi^2} m^3 \right) + k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(-\frac{2i}{5\pi^2} m^5 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(-\frac{2i}{3\pi^2} m^5 \right) + \\ & + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(-\frac{4i}{3\pi^2} m^5 \right) + k_\nu^5 \eta_{\mu\mu}^2 \left(-\frac{4i}{35\pi^2} m^7 \right) + k_\mu^4 k_\nu^2 \eta_{\nu\nu}^2 \left(-\frac{4i}{7\pi^2} m^7 \right) + \\ & + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{16i}{7\pi^2} m^7 \right) + \\ & + (k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2 + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{32i}{7\pi^2} m^7 \right) + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(-\frac{32i}{63\pi^2} m^9 \right) + \\ & + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{32i}{21\pi^2} m^9 \right) + \\ & + (k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{128i}{21\pi^2} m^9 \right) + \\ & + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{64i}{63\pi^2} m^9 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(-\frac{128i}{63\pi^2} m^9 \right) + \\ & + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(-\frac{256i}{63\pi^2} m^9 \right) + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(-\frac{64i}{231\pi^2} m^{11} \right) + \\ & + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{256i}{231\pi^2} m^{11} \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{512i}{231\pi^2} m^{11} \right) + \\ & + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(-\frac{1024i}{693\pi^2} m^{11} \right) + k_\nu \eta_{\mu\nu}^4 \left(-\frac{512i}{693\pi^2} m^{11} \right) \end{aligned} \quad (4.331)$$

$$\begin{aligned} k \cdot \tilde{T}_{5,5;6D}^{\text{s,nt}} = & k_\mu^4 k_\nu^5 \left(\frac{iL_2}{64\pi^3} m^4 \right) + k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(\frac{iL_3}{16\pi^3} m^6 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(\frac{5iL_3}{48\pi^3} m^6 \right) + \\ & + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(\frac{5iL_3}{24\pi^3} m^6 \right) + k_\nu^5 \eta_{\mu\mu}^2 \left(\frac{iL_4}{64\pi^3} m^8 \right) + k_\mu^4 k_\nu^2 \eta_{\nu\nu}^2 \left(\frac{5iL_4}{64\pi^3} m^8 \right) + \\ & + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{5iL_4}{16\pi^3} m^8 \right) + \\ & + (k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2 + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{5iL_4}{8\pi^3} m^8 \right) + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(\frac{iL_5}{16\pi^3} m^{10} \right) + \\ & + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{3iL_5}{16\pi^3} m^{10} \right) + \\ & + (k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{3iL_5}{4\pi^3} m^{10} \right) + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{iL_5}{8\pi^3} m^{10} \right) + \\ & + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(\frac{iL_5}{4\pi^3} m^{10} \right) + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{iL_5}{2\pi^3} m^{10} \right) + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{iL_6}{32\pi^3} m^{12} \right) + \\ & + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{iL_6}{8\pi^3} m^{12} \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{iL_6}{4\pi^3} m^{12} \right) + \\ & + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{iL_6}{6\pi^3} m^{12} \right) + k_\nu \eta_{\mu\nu}^4 \left(\frac{iL_6}{12\pi^3} m^{12} \right) \end{aligned} \quad (4.332)$$

4.3.4 Fermion amplitudes

Fermions, spin 0 x 0, dimension 3:

$$\tilde{T}_{0,0;3D}^f = -\frac{i}{2\pi}m + T\left(-\frac{1}{8}k + \frac{1}{2}\frac{m^2}{k}\right) \quad (4.333)$$

Fermions, spin 0 x 0, dimension 4:

$$\tilde{T}_{0,0;4D}^f = \frac{i}{4\pi^2}\left(\left(1 - \frac{L_0}{2}\right)k^2 + (-5 + 3L_0)m^2\right) + \frac{iS}{4\pi^2}\left(-k + 4\frac{m^2}{k}\right) \quad (4.334)$$

Fermions, spin 0 x 0, dimension 5:

$$\tilde{T}_{0,0;5D}^f = \frac{i}{4\pi^2}\left(-\frac{1}{4}k^2m + \frac{5}{3}m^3\right) + \frac{T}{4\pi}\left(-\frac{1}{16}k^3 + \frac{1}{2}km^2 - \frac{m^4}{k}\right) \quad (4.335)$$

Fermions, spin 0 x 0, dimension 6:

$$\begin{aligned} \tilde{T}_{0,0;6D}^f &= \frac{i}{4\pi^3}\left(\left(\frac{1}{9} - \frac{L_0}{24}\right)k^4 + \left(-\frac{37}{36} + \frac{5L_0}{12}\right)k^2m^2 + \left(\frac{65}{24} - \frac{5L_0}{4}\right)m^4\right) + \\ &+ \frac{iS}{3\pi^3}\left(-\frac{1}{16}k^3 + \frac{1}{2}km^2 - \frac{m^4}{k}\right) \end{aligned} \quad (4.336)$$

Fermions, spin 0 x 2, dimension 3:

$$\tilde{T}_{0,2;3D}^{f,t} = k^2\pi_{\nu\nu}\left(\frac{i}{2\pi}\frac{m^2}{k^2} + T\left(-\frac{1}{8}\frac{m}{k} + \frac{1}{2}\frac{m^3}{k^3}\right)\right) \quad (4.337)$$

$$\tilde{T}_{0,2;3D}^{f,nt} = \eta_{\nu\nu}\left(-\frac{i}{\pi}m^2\right) \quad (4.338)$$

Fermions, spin 0 x 2, dimension 4:

$$\tilde{T}_{0,2;4D}^{f,t} = k^2\pi_{\nu\nu}\left(\frac{i}{3\pi^2}\left(\left(\frac{2}{3} - \frac{L_0}{4}\right)m - 2\frac{m^3}{k^2}\right) + \frac{iS}{3\pi^2}\left(-\frac{1}{2}\frac{m}{k} + 2\frac{m^3}{k^3}\right)\right) \quad (4.339)$$

$$\tilde{T}_{0,2;4D}^{f,nt} = \eta_{\nu\nu}\left(\frac{iL_1}{2\pi^2}m^3\right) \quad (4.340)$$

Fermions, spin 0 x 2, dimension 5:

$$\tilde{T}_{0,2;5D}^{f,t} = k^2\pi_{\nu\nu}\left(\frac{i}{8\pi^2}\left(-\frac{1}{4}m^2 - \frac{m^4}{k^2}\right) + \frac{T}{8\pi}\left(-\frac{1}{16}km + \frac{1}{2}\frac{m^3}{k} - \frac{m^5}{k^3}\right)\right) \quad (4.341)$$

$$\tilde{T}_{0,2;5D}^{f,nt} = \eta_{\nu\nu}\left(\frac{i}{3\pi^2}m^4\right) \quad (4.342)$$

Fermions, spin 0 x 2, dimension 6:

$$\tilde{T}_{0,2;6D}^{f,t} = k^2\pi_{\nu\nu}\left(\frac{i}{3\pi^3}\left(\left(\frac{23}{600} - \frac{L_0}{80}\right)k^2m + \left(-\frac{43}{120} + \frac{L_0}{8}\right)m^3 + \frac{2}{5}\frac{m^5}{k^2}\right) + \right.$$

$$+\frac{iS}{15\pi^3}\left(-\frac{1}{8}km+\frac{m^3}{k}-2\frac{m^5}{k^3}\right) \quad (4.343)$$

$$\tilde{T}_{0,2;6D}^{\text{f,nt}} = \eta_{\nu\nu} \left(-\frac{iL_2}{8\pi^3}m^5 \right) \quad (4.344)$$

Fermions, spin 0 x 4, dimension 3:

$$\tilde{T}_{0,4;3D}^{\text{f,t}} = k^4\pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(-\frac{5}{4}\frac{m^2}{k^2} + 3\frac{m^4}{k^4} \right) + T \left(\frac{3}{32}\frac{m}{k} - \frac{3}{4}\frac{m^3}{k^3} + \frac{3}{2}\frac{m^5}{k^5} \right) \right) \quad (4.345)$$

$$\tilde{T}_{0,4;3D}^{\text{f,nt}} = k_{\nu}^2\eta_{\nu\nu} \left(-\frac{2i}{\pi}m^2 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{\pi} (k^2m^2 - 4m^4) \right) \quad (4.346)$$

Fermions, spin 0 x 4, dimension 4:

$$\begin{aligned} \tilde{T}_{0,4;4D}^{\text{f,t}} = k^4\pi_{\nu\nu}^2 & \left(\frac{i}{5\pi^2} \left(\left(-\frac{23}{30} + \frac{L_0}{4} \right) m + \frac{14}{3}\frac{m^3}{k^2} - 8\frac{m^5}{k^4} \right) + \right. \\ & \left. + \frac{iS}{5\pi^2} \left(\frac{1}{2}\frac{m}{k} - 4\frac{m^3}{k^3} + 8\frac{m^5}{k^5} \right) \right) \end{aligned} \quad (4.347)$$

$$\tilde{T}_{0,4;4D}^{\text{f,nt}} = k_{\nu}^2\eta_{\nu\nu} \left(\frac{iL_1}{\pi^2}m^3 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{2\pi^2} (-L_1k^2m^3 + 3L_2m^5) \right) \quad (4.348)$$

Fermions, spin 0 x 4, dimension 5:

$$\tilde{T}_{0,4;5D}^{\text{f,t}} = k^4\pi_{\nu\nu}^2 \left(\frac{i}{2\pi^2} \left(\frac{1}{32}m^2 + \frac{1}{3}\frac{m^4}{k^2} - \frac{1}{2}\frac{m^6}{k^4} \right) + \frac{T}{4\pi} \left(\frac{1}{64}km - \frac{3}{16}\frac{m^3}{k} + \frac{3}{4}\frac{m^5}{k^3} - \frac{m^7}{k^5} \right) \right) \quad (4.349)$$

$$\tilde{T}_{0,4;5D}^{\text{f,nt}} = k_{\nu}^2\eta_{\nu\nu} \left(\frac{2i}{3\pi^2}m^4 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(-\frac{1}{3}k^2m^4 + \frac{4}{5}m^6 \right) \right) \quad (4.350)$$

Fermions, spin 0 x 4, dimension 6:

$$\begin{aligned} \tilde{T}_{0,4;6D}^{\text{f,t}} = k^4\pi_{\nu\nu}^2 & \left(\frac{i}{\pi^3} \left(\left(-\frac{22}{3675} + \frac{L_0}{560} \right) k^2m + \left(\frac{337}{4200} - \frac{L_0}{40} \right) m^3 - \frac{4}{21}\frac{m^5}{k^2} + \frac{8}{35}\frac{m^7}{k^4} \right) + \right. \\ & \left. + \frac{iS}{35\pi^3} \left(\frac{1}{8}km - \frac{3}{2}\frac{m^3}{k} + 6\frac{m^5}{k^3} - 8\frac{m^7}{k^5} \right) \right) \end{aligned} \quad (4.351)$$

$$\tilde{T}_{0,4;6D}^{\text{f,nt}} = k_{\nu}^2\eta_{\nu\nu} \left(-\frac{iL_2}{4\pi^3}m^5 \right) + \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^3} \left(\frac{L_2}{2}k^2m^5 - L_3m^7 \right) \right) \quad (4.352)$$

Fermions, spin 1 x 1, dimension 3:

$$\tilde{T}_{1,1;3D}^{\text{f,t}} = k^2\pi_{\mu\nu} \left(\frac{i}{4\pi} \frac{m}{k^2} + T \left(\frac{1}{16}\frac{1}{k} + \frac{1}{4}\frac{m^2}{k^3} \right) \right) + (k \cdot \epsilon)_{\mu\nu} \left(-\frac{iT}{4} \frac{m}{k} \right) \quad (4.353)$$

$$\tilde{T}_{1,1;3D}^{\text{f,nt}} = 0 \quad (4.354)$$

Fermions, spin 1 x 1, dimension 4:

$$\tilde{T}_{1,1;4D}^{\text{f,t}} = k^2 \pi_{\mu\nu} \left(\frac{i}{3\pi^2} \left(\left(-\frac{5}{12} + \frac{L_0}{4} \right) - \frac{m^2}{k^2} \right) + \frac{iS}{3\pi^2} \left(\frac{1}{2} \frac{1}{k} + \frac{m^2}{k^3} \right) \right) \quad (4.355)$$

$$\tilde{T}_{1,1;4D}^{\text{f,nt}} = 0 \quad (4.356)$$

Fermions, spin 1 x 1, dimension 5:

$$\tilde{T}_{1,1;5D}^{\text{f,t}} = k^2 \pi_{\mu\nu} \left(\frac{i}{16\pi^2} \left(\frac{3}{4} m - \frac{m^3}{k^2} \right) + \frac{T}{16\pi} \left(\frac{3}{16} k - \frac{1}{2} \frac{m^2}{k} - \frac{m^4}{k^3} \right) \right) \quad (4.357)$$

$$\tilde{T}_{1,1;5D}^{\text{f,nt}} = 0 \quad (4.358)$$

Fermions, spin 1 x 1, dimension 6:

$$\begin{aligned} \tilde{T}_{1,1;6D}^{\text{f,t}} = k^2 \pi_{\mu\nu} & \left(\frac{i}{3\pi^3} \left(\left(-\frac{77}{1200} + \frac{L_0}{40} \right) k^2 + \left(\frac{31}{120} - \frac{L_0}{8} \right) m^2 + \frac{1}{5} \frac{m^4}{k^2} \right) + \right. \\ & \left. + \frac{iS}{5\pi^3} \left(\frac{1}{12} k - \frac{1}{4} \frac{m^2}{k} - \frac{1}{3} \frac{m^4}{k^3} \right) \right) \end{aligned} \quad (4.359)$$

$$\tilde{T}_{1,1;6D}^{\text{f,nt}} = 0 \quad (4.360)$$

Fermions, spin 1 x 3, dimension 3:

$$\begin{aligned} \tilde{T}_{1,3;3D}^{\text{f,t}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} & \left(\frac{i}{4\pi} \left(-\frac{1}{4} \frac{m}{k^2} + 3 \frac{m^3}{k^4} \right) + T \left(-\frac{1}{64} \frac{1}{k} - \frac{1}{8} \frac{m^2}{k^3} + \frac{3}{4} \frac{m^4}{k^5} \right) \right) + \\ & + k^2 (k \cdot \epsilon)_{\mu\nu} \pi_{\nu\nu} \left(\frac{1}{2\pi} \frac{m^2}{k^2} + iT \left(\frac{1}{8} \frac{m}{k} - \frac{1}{2} \frac{m^3}{k^3} \right) \right) \end{aligned} \quad (4.361)$$

$$\tilde{T}_{1,3;3D}^{\text{f,nt}} = \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{4i}{3\pi} m^3 \right) + (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{1}{\pi} m^2 \right) \quad (4.362)$$

Fermions, spin 1 x 3, dimension 4:

$$\begin{aligned} \tilde{T}_{1,3;4D}^{\text{f,t}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} & \left(\frac{i}{5\pi^2} \left(\left(\frac{31}{180} - \frac{L_0}{12} \right) + \frac{2}{3} \frac{m^2}{k^2} - 4 \frac{m^4}{k^4} \right) + \right. \\ & \left. + \frac{iS}{5\pi^2} \left(-\frac{1}{6} \frac{1}{k} - \frac{1}{3} \frac{m^2}{k^3} + 4 \frac{m^4}{k^5} \right) \right) \end{aligned} \quad (4.363)$$

$$\tilde{T}_{1,3;4D}^{\text{f,nt}} = \eta_{\nu\nu} \eta_{\mu\nu} \left(\frac{iL_2}{2\pi^2} m^4 \right) \quad (4.364)$$

Fermions, spin 1 x 3, dimension 5:

$$\begin{aligned}\tilde{T}_{1,3;5D}^{\text{f,t}} = & k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{8\pi^2} \left(-\frac{1}{16} m + \frac{1}{6} \frac{m^3}{k^2} - \frac{m^5}{k^4} \right) + \right. \\ & \left. + \frac{T}{8\pi} \left(-\frac{1}{64} k + \frac{1}{16} \frac{m^2}{k} + \frac{1}{4} \frac{m^4}{k^3} - \frac{m^6}{k^5} \right) \right)\end{aligned}\quad (4.365)$$

$$\tilde{T}_{1,3;5D}^{\text{f,nt}} = \eta_{\nu\nu} \eta_{\mu\nu} \left(\frac{4i}{15\pi^2} m^5 \right) \quad (4.366)$$

Fermions, spin 1 x 3, dimension 6:

$$\begin{aligned}\tilde{T}_{1,3;6D}^{\text{f,t}} = & k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{5\pi^3} \left(\left(\frac{599}{35280} - \frac{L_0}{168} \right) k^2 + \left(-\frac{247}{2520} + \frac{L_0}{24} \right) m^2 - \frac{1}{7} \frac{m^4}{k^2} + \frac{4}{7} \frac{m^6}{k^4} \right) + \right. \\ & \left. + \frac{iS}{7\pi^3} \left(-\frac{1}{60} k + \frac{1}{12} \frac{m^2}{k} + \frac{2}{15} \frac{m^4}{k^3} - \frac{4}{5} \frac{m^6}{k^5} \right) \right)\end{aligned}\quad (4.367)$$

$$\tilde{T}_{1,3;6D}^{\text{f,nt}} = \eta_{\nu\nu} \eta_{\mu\nu} \left(-\frac{iL_3}{12\pi^3} m^6 \right) \quad (4.368)$$

Fermions, spin 1 x 5, dimension 3:

$$\begin{aligned}\tilde{T}_{1,5;3D}^{\text{f,t}} = & k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(\frac{1}{16} \frac{m}{k^2} - \frac{11}{6} \frac{m^3}{k^4} + 5 \frac{m^5}{k^6} \right) + \right. \\ & + T \left(\frac{1}{128} \frac{1}{k} + \frac{3}{32} \frac{m^2}{k^3} - \frac{9}{8} \frac{m^4}{k^5} + \frac{5}{2} \frac{m^6}{k^7} \right) \Bigg) + \\ & + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{1}{2\pi} \left(-\frac{5}{4} \frac{m^2}{k^2} + 3 \frac{m^4}{k^4} \right) + iT \left(-\frac{3}{32} \frac{m}{k} + \frac{3}{4} \frac{m^3}{k^3} - \frac{3}{2} \frac{m^5}{k^5} \right) \right)\end{aligned}\quad (4.369)$$

$$\begin{aligned}\tilde{T}_{1,5;3D}^{\text{f,nt}} = & k_\mu k_\nu \eta_{\nu\nu}^2 \left(-\frac{4i}{3\pi} m^3 \right) + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{8i}{3\pi} m^3 \right) + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi} \left(\frac{4}{3} k^2 m^3 - \frac{32}{5} m^5 \right) \right) + \\ & + k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{2}{\pi} m^2 \right) + (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{1}{\pi} (k^2 m^2 - 4m^4) \right)\end{aligned}\quad (4.370)$$

Fermions, spin 1 x 5, dimension 4:

$$\begin{aligned}\tilde{T}_{1,5;4D}^{\text{f,t}} = & k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{7\pi^2} \left(\left(-\frac{247}{2100} + \frac{L_0}{20} \right) - \frac{3}{5} \frac{m^2}{k^2} + \frac{116}{15} \frac{m^4}{k^4} - 16 \frac{m^6}{k^6} \right) + \right. \\ & \left. + \frac{iS}{7\pi^2} \left(\frac{1}{10} \frac{1}{k} + \frac{1}{5} \frac{m^2}{k^3} - \frac{32}{5} \frac{m^4}{k^5} + 16 \frac{m^6}{k^7} \right) \right)\end{aligned}\quad (4.371)$$

$$\begin{aligned}\tilde{T}_{1,5;4D}^{\text{f,nt}} = & k_\mu k_\nu \eta_{\nu\nu}^2 \left(\frac{iL_2}{2\pi^2} m^4 \right) + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{iL_2}{\pi^2} m^4 \right) + \\ & + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{2\pi^2} (-L_2 k^2 m^4 + 4L_3 m^6) \right)\end{aligned}\quad (4.372)$$

Fermions, spin 1 x 5, dimension 5:

$$\begin{aligned}\tilde{T}_{1,5;5D}^{\text{f,t}} &= k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{16\pi^2} \left(\frac{3}{64} m - \frac{3}{16} \frac{m^3}{k^2} + \frac{31}{12} \frac{m^5}{k^4} - 5 \frac{m^7}{k^6} \right) + \right. \\ &\quad \left. + \frac{T}{16\pi} \left(\frac{3}{256} k - \frac{1}{16} \frac{m^2}{k} - \frac{3}{8} \frac{m^4}{k^3} + 3 \frac{m^6}{k^5} - 5 \frac{m^8}{k^7} \right) \right) \quad (4.373)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{1,5;5D}^{\text{f,nt}} &= k_\mu k_\nu \eta_{\nu\nu}^2 \left(\frac{4i}{15\pi^2} m^5 \right) + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{8i}{15\pi^2} m^5 \right) + \\ &\quad + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(-\frac{4}{3} k^2 m^5 + \frac{32}{7} m^7 \right) \right) \quad (4.374)\end{aligned}$$

Fermions, spin 1 x 5, dimension 6:

$$\begin{aligned}\tilde{T}_{1,5;6D}^{\text{f,t}} &= k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \left(\frac{i}{7\pi^3} \left(\left(-\frac{1937}{226800} + \frac{L_0}{360} \right) k^2 + \left(\frac{811}{12600} - \frac{L_0}{40} \right) m^2 + \frac{2}{15} \frac{m^4}{k^2} - \right. \right. \\ &\quad \left. \left. - \frac{152}{135} \frac{m^6}{k^4} + \frac{16}{9} \frac{m^8}{k^6} \right) + \right. \\ &\quad \left. + \frac{iS}{3\pi^3} \left(\frac{1}{420} k - \frac{1}{60} \frac{m^2}{k} - \frac{1}{35} \frac{m^4}{k^3} + \frac{44}{105} \frac{m^6}{k^5} - \frac{16}{21} \frac{m^8}{k^7} \right) \right) \quad (4.375)\end{aligned}$$

$$\begin{aligned}\tilde{T}_{1,5;6D}^{\text{f,nt}} &= k_\mu k_\nu \eta_{\nu\nu}^2 \left(-\frac{iL_3}{12\pi^3} m^6 \right) + k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{iL_3}{6\pi^3} m^6 \right) + \\ &\quad + \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^3} \left(\frac{L_3}{3} k^2 m^6 - L_4 m^8 \right) \right) \quad (4.376)\end{aligned}$$

Fermions, spin 2 x 2, dimension 3:

$$\begin{aligned}\tilde{T}_{2,2;3D}^{\text{f,t}} &= k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi} \left(-\frac{1}{4} \frac{m}{k^2} + \frac{m^3}{k^4} \right) + T \left(-\frac{1}{32} \frac{1}{k} + \frac{1}{2} \frac{m^4}{k^5} \right) \right) + \\ &\quad + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{4\pi} \left(\frac{1}{4} \frac{m}{k^2} + \frac{m^3}{k^4} \right) + T \left(\frac{1}{64} \frac{1}{k} - \frac{1}{8} \frac{m^2}{k^3} + \frac{1}{4} \frac{m^4}{k^5} \right) \right) + \\ &\quad + k^2 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu} \left(\frac{1}{2\pi} \frac{m^2}{k^2} + iT \left(\frac{1}{8} \frac{m}{k} - \frac{1}{2} \frac{m^3}{k^3} \right) \right) \quad (4.377)\end{aligned}$$

$$\tilde{T}_{2,2;3D}^{\text{f,nt}} = (\eta_{\mu\nu}^2 + \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{2i}{3\pi} m^3 \right) + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{1}{\pi} m^2 \right) \quad (4.378)$$

Fermions, spin 2 x 2, dimension 4:

$$\begin{aligned}\tilde{T}_{2,2;4D}^{\text{f,t}} &= k^4 \pi_{\mu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{3}{50} - \frac{L_0}{40} \right) + \left(-\frac{19}{180} + \frac{L_0}{12} \right) \frac{m^2}{k^2} - \frac{8}{15} \frac{m^4}{k^4} \right) + \right. \\ &\quad \left. + \frac{iS}{5\pi^2} \left(-\frac{1}{4} \frac{1}{k} + \frac{1}{3} \frac{m^2}{k^3} + \frac{8}{3} \frac{m^4}{k^5} \right) \right) + \\ &\quad + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\left(-\frac{23}{300} + \frac{L_0}{40} \right) + \left(\frac{43}{60} - \frac{L_0}{4} \right) \frac{m^2}{k^2} - \frac{4}{5} \frac{m^4}{k^4} \right) + \right.\end{aligned}$$

$$+\frac{iS}{15\pi^2}\left(\frac{1}{4}\frac{1}{k}-2\frac{m^2}{k^3}+4\frac{m^4}{k^5}\right)\quad (4.379)$$

$$\tilde{T}_{2,2;4D}^{\text{f,nt}}=(\eta_{\mu\nu}^2+\eta_{\mu\mu}\eta_{\nu\nu})\left(\frac{iL_2}{4\pi^2}m^4\right)\quad (4.380)$$

Fermions, spin 2 x 2, dimension 5:

$$\begin{aligned}\tilde{T}_{2,2;5D}^{\text{f,t}} &= k^4\pi_{\mu\nu}^2\left(\frac{i}{12\pi^2}\left(-\frac{1}{8}m+\frac{7}{12}\frac{m^3}{k^2}-\frac{m^5}{k^4}\right)+\frac{T}{4\pi}\left(-\frac{1}{96}k+\frac{1}{16}\frac{m^2}{k}-\frac{1}{3}\frac{m^6}{k^5}\right)\right)+ \\ &+ k^4\pi_{\mu\mu}\pi_{\nu\nu}\left(\frac{i}{12\pi^2}\left(\frac{1}{32}m-\frac{1}{3}\frac{m^3}{k^2}-\frac{1}{2}\frac{m^5}{k^4}\right)+\right. \\ &\left.+\frac{T}{8\pi}\left(\frac{1}{192}k-\frac{1}{16}\frac{m^2}{k}+\frac{1}{4}\frac{m^4}{k^3}-\frac{1}{3}\frac{m^6}{k^5}\right)\right)\end{aligned}\quad (4.381)$$

$$\tilde{T}_{2,2;5D}^{\text{f,nt}}=(\eta_{\mu\nu}^2+\eta_{\mu\mu}\eta_{\nu\nu})\left(\frac{2i}{15\pi^2}m^5\right)\quad (4.382)$$

Fermions, spin 2 x 2, dimension 6:

$$\begin{aligned}\tilde{T}_{2,2;6D}^{\text{f,t}} &= k^4\pi_{\mu\nu}^2\left(\frac{i}{\pi^3}\left(\left(\frac{31}{7056}-\frac{L_0}{672}\right)k^2+\left(-\frac{277}{8400}+\frac{L_0}{80}\right)m^2+\left(\frac{347}{10080}-\frac{L_0}{48}\right)\frac{m^4}{k^2}+\right.\right. \\ &\left.+\frac{8}{105}\frac{m^6}{k^4}\right)+\frac{iS}{21\pi^3}\left(-\frac{1}{16}k+\frac{2}{5}\frac{m^2}{k}-\frac{1}{5}\frac{m^4}{k^3}-\frac{8}{5}\frac{m^6}{k^5}\right)\right)+ \\ &+ k^4\pi_{\mu\mu}\pi_{\nu\nu}\left(\frac{i}{3\pi^3}\left(\left(-\frac{11}{3675}+\frac{L_0}{1120}\right)k^2+\left(\frac{337}{8400}-\frac{L_0}{80}\right)m^2+\right.\right. \\ &\left.+\left(-\frac{127}{672}+\frac{L_0}{16}\right)\frac{m^4}{k^2}+\frac{4}{35}\frac{m^6}{k^4}\right)+\frac{iS}{35\pi^3}\left(\frac{1}{48}k-\frac{1}{4}\frac{m^2}{k}+\frac{m^4}{k^3}-\frac{4}{3}\frac{m^6}{k^5}\right)\right)\end{aligned}\quad (4.383)$$

$$\tilde{T}_{2,2;6D}^{\text{f,nt}}=(\eta_{\mu\nu}^2+\eta_{\mu\mu}\eta_{\nu\nu})\left(-\frac{iL_3}{24\pi^3}m^6\right)\quad (4.384)$$

Fermions, spin 2 x 4, dimension 3:

$$\begin{aligned}\tilde{T}_{2,4;3D}^{\text{f,t}} &= k^6\pi_{\mu\nu}^2\pi_{\nu\nu}\left(\frac{i}{4\pi}\left(\frac{1}{4}\frac{m}{k^2}-\frac{7}{3}\frac{m^3}{k^4}+8\frac{m^5}{k^6}\right)+T\left(\frac{1}{64}\frac{1}{k}-\frac{3}{4}\frac{m^4}{k^5}+2\frac{m^6}{k^7}\right)\right)+ \\ &+ k^6\pi_{\mu\mu}\pi_{\nu\nu}^2\left(\frac{i}{\pi}\left(-\frac{1}{32}\frac{m}{k^2}-\frac{1}{3}\frac{m^3}{k^4}+\frac{1}{2}\frac{m^5}{k^6}\right)+\right. \\ &\left.+T\left(-\frac{1}{128}\frac{1}{k}+\frac{3}{32}\frac{m^2}{k^3}-\frac{3}{8}\frac{m^4}{k^5}+\frac{1}{2}\frac{m^6}{k^7}\right)\right)+ \\ &+ k^4(k\cdot\epsilon)_{\mu\nu}\pi_{\mu\nu}\pi_{\nu\nu}\left(\frac{1}{2\pi}\left(-\frac{5}{4}\frac{m^2}{k^2}+3\frac{m^4}{k^4}\right)+iT\left(-\frac{3}{32}\frac{m}{k}+\frac{3}{4}\frac{m^3}{k^3}-\frac{3}{2}\frac{m^5}{k^5}\right)\right)\end{aligned}\quad (4.385)$$

$$\begin{aligned}
\tilde{T}_{2,4;3D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{4i}{3\pi} m^3 \right) + (k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\nu\nu}^2) \left(-\frac{2i}{3\pi} m^3 \right) + \\
& + \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi} \left(\frac{2}{3} k^2 m^3 - \frac{8}{5} m^5 \right) \right) + \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{2}{3} k^2 m^3 - \frac{24}{5} m^5 \right) \right) + \\
& + (k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{1}{\pi} m^2 \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{1}{\pi} (k^2 m^2 - 4m^4) \right)
\end{aligned} \tag{4.386}$$

Fermions, spin 2 x 4, dimension 4:

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(-\frac{141}{980} + \frac{3L_0}{56} \right) + \left(\frac{157}{420} - \frac{L_0}{4} \right) \frac{m^2}{k^2} + \frac{76}{21} \frac{m^4}{k^4} - \frac{64}{7} \frac{m^6}{k^6} \right) + \right. \\
& + \left. \frac{iS}{7\pi^2} \left(\frac{3}{20} \frac{1}{k} - \frac{2}{5} \frac{m^2}{k^3} - 4 \frac{m^4}{k^5} + \frac{64}{5} \frac{m^6}{k^7} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{44}{3675} - \frac{L_0}{280} \right) + \left(-\frac{337}{2100} + \frac{L_0}{20} \right) \frac{m^2}{k^2} + \frac{8}{21} \frac{m^4}{k^4} - \right. \right. \\
& \left. \left. - \frac{16}{35} \frac{m^6}{k^6} \right) + \frac{iS}{35\pi^2} \left(-\frac{1}{4} \frac{1}{k} + 3 \frac{m^2}{k^3} - 12 \frac{m^4}{k^5} + 16 \frac{m^6}{k^7} \right) \right)
\end{aligned} \tag{4.387}$$

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_2}{2\pi^2} m^4 \right) + (k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\nu\nu}^2) \left(\frac{iL_2}{4\pi^2} m^4 \right) + \\
& + \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{i}{2\pi^2} \left(-\frac{L_2}{2} k^2 m^4 + L_3 m^6 \right) \right) + \\
& + \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{2\pi^2} \left(-\frac{L_2}{2} k^2 m^4 + 3L_3 m^6 \right) \right)
\end{aligned} \tag{4.388}$$

Fermions, spin 2 x 4, dimension 5:

$$\begin{aligned}
\tilde{T}_{2,4;5D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{4\pi^2} \left(\frac{1}{64} m - \frac{5}{48} \frac{m^3}{k^2} + \frac{5}{12} \frac{m^5}{k^4} - \frac{m^7}{k^6} \right) + \right. \\
& + \left. \frac{T}{4\pi} \left(\frac{1}{256} k - \frac{1}{32} \frac{m^2}{k} + \frac{1}{2} \frac{m^6}{k^5} - \frac{m^8}{k^7} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{16\pi^2} \left(-\frac{1}{64} m + \frac{11}{48} \frac{m^3}{k^2} + \frac{11}{12} \frac{m^5}{k^4} - \frac{m^7}{k^6} \right) + \right. \\
& + \left. \frac{T}{16\pi} \left(-\frac{1}{256} k + \frac{1}{16} \frac{m^2}{k} - \frac{3}{8} \frac{m^4}{k^3} + \frac{m^6}{k^5} - \frac{m^8}{k^7} \right) \right)
\end{aligned} \tag{4.389}$$

$$\begin{aligned}
\tilde{T}_{2,4;5D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{4i}{15\pi^2} m^5 \right) + (k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\nu\nu}^2) \left(\frac{2i}{15\pi^2} m^5 \right) + \\
& + \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(-\frac{2}{3} k^2 m^5 + \frac{8}{7} m^7 \right) \right) + \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(-\frac{2}{3} k^2 m^5 + \frac{24}{7} m^7 \right) \right)
\end{aligned} \tag{4.390}$$

Fermions, spin 2 x 4, dimension 6:

$$\begin{aligned}
\tilde{T}_{2,4;6D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{25}{15876} + \frac{L_0}{2016} \right) k^2 + \left(\frac{2713}{176400} - \frac{3L_0}{560} \right) m^2 + \right. \right. \\
& + \left(-\frac{379}{16800} + \frac{L_0}{80} \right) \frac{m^4}{k^2} - \frac{20}{189} \frac{m^6}{k^4} + \frac{64}{315} \frac{m^8}{k^6} \Bigg) + \\
& + \frac{iS}{3\pi^3} \left(\frac{1}{336} k - \frac{11}{420} \frac{m^2}{k} + \frac{1}{35} \frac{m^4}{k^3} + \frac{4}{15} \frac{m^6}{k^5} - \frac{64}{105} \frac{m^8}{k^7} \right) \Bigg) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^3} \left(\left(\frac{563}{317520} - \frac{L_0}{2016} \right) k^2 + \left(-\frac{1091}{35280} + \frac{L_0}{112} \right) m^2 + \right. \right. \\
& + \left(\frac{233}{1120} - \frac{L_0}{16} \right) \frac{m^4}{k^2} - \frac{52}{189} \frac{m^6}{k^4} + \frac{16}{63} \frac{m^8}{k^6} \Bigg) + \\
& + \frac{iS}{105\pi^3} \left(-\frac{1}{48} k + \frac{1}{3} \frac{m^2}{k} - 2 \frac{m^4}{k^3} + \frac{16}{3} \frac{m^6}{k^5} - \frac{16}{3} \frac{m^8}{k^7} \right) \Bigg) \quad (4.391)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,4;6D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{12\pi^3} m^6 \right) + (k_\nu^2 \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\nu\nu}^2) \left(-\frac{iL_3}{24\pi^3} m^6 \right) + \\
& + \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{i}{8\pi^3} \left(\frac{L_3}{3} k^2 m^6 - \frac{L_4}{2} m^8 \right) \right) + \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{8\pi^3} \left(\frac{L_3}{3} k^2 m^6 - \frac{3L_4}{2} m^8 \right) \right) \quad (4.392)
\end{aligned}$$

Fermions, spin 3 x 3, dimension 3:

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{2\pi} \left(\frac{1}{8} \frac{m}{k^2} - \frac{1}{3} \frac{m^3}{k^4} + 2 \frac{m^5}{k^6} \right) + T \left(\frac{1}{64} \frac{1}{k} - \frac{1}{16} \frac{m^2}{k^3} - \frac{1}{4} \frac{m^4}{k^5} + \frac{m^6}{k^7} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(-\frac{1}{16} \frac{m}{k^2} - \frac{3}{2} \frac{m^3}{k^4} + 3 \frac{m^5}{k^6} \right) + \right. \\
& + T \left(-\frac{1}{128} \frac{1}{k} + \frac{5}{32} \frac{m^2}{k^3} - \frac{7}{8} \frac{m^4}{k^5} + \frac{3}{2} \frac{m^6}{k^7} \right) \Bigg) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \left(\frac{1}{4\pi} \left(-3 \frac{m^2}{k^2} + 4 \frac{m^4}{k^4} \right) + iT \left(-\frac{1}{16} \frac{m}{k} + \frac{1}{2} \frac{m^3}{k^3} - \frac{m^5}{k^5} \right) \right) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{1}{2\pi} \left(\frac{1}{4} \frac{m^2}{k^2} + \frac{m^4}{k^4} \right) + iT \left(-\frac{1}{32} \frac{m}{k} + \frac{1}{4} \frac{m^3}{k^3} - \frac{1}{2} \frac{m^5}{k^5} \right) \right) \quad (4.393)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{4i}{3\pi} m^3 \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{3\pi} \left(4k^2 m^3 - \frac{64}{5} m^5 \right) \right) + \eta_{\mu\nu}^3 \left(-\frac{32i}{15\pi} m^5 \right) + \\
& + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{2}{\pi} m^2 \right) + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{4}{3\pi} m^4 \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \left(\frac{1}{3\pi} (3k^2 m^2 - 8m^4) \right) \quad (4.394)
\end{aligned}$$

Fermions, spin 3 x 3, dimension 4:

$$\begin{aligned}
\tilde{T}_{3,3;4D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{5\pi^2} \left(\left(-\frac{599}{4410} + \frac{L_0}{21} \right) + \left(\frac{247}{315} - \frac{L_0}{3} \right) \frac{m^2}{k^2} + \frac{8}{7} \frac{m^4}{k^4} - \frac{32}{7} \frac{m^6}{k^6} \right) + \right. \\
& + \frac{iS}{7\pi^2} \left(\frac{2}{15} \frac{1}{k} - \frac{2}{3} \frac{m^2}{k^3} - \frac{16}{15} \frac{m^4}{k^5} + \frac{32}{5} \frac{m^6}{k^7} \right) \Bigg) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(\frac{457}{8820} - \frac{L_0}{84} \right) + \left(-\frac{382}{315} + \frac{L_0}{3} \right) \frac{m^2}{k^2} + \frac{92}{21} \frac{m^4}{k^4} - \right. \right. \\
& \left. \left. - \frac{48}{7} \frac{m^6}{k^6} \right) + \frac{iS}{7\pi^2} \left(-\frac{1}{30} \frac{1}{k} + \frac{13}{15} \frac{m^2}{k^3} - \frac{16}{3} \frac{m^4}{k^5} + \frac{48}{5} \frac{m^6}{k^7} \right) \right) \quad (4.395)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;4D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_2}{2\pi^2} m^4 \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{L_2}{2} k^2 m^4 + \frac{4L_3}{3} m^6 \right) \right) + \eta_{\mu\nu}^3 \left(\frac{2iL_3}{3\pi^2} m^6 \right) \quad (4.396)
\end{aligned}$$

Fermions, spin 3 x 3, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,3;5D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{8\pi^2} \left(\frac{5}{192} m - \frac{31}{144} \frac{m^3}{k^2} + \frac{1}{4} \frac{m^5}{k^4} - \frac{m^7}{k^6} \right) + \right. \\
& + \frac{T}{8\pi} \left(\frac{5}{768} k - \frac{1}{16} \frac{m^2}{k} + \frac{1}{8} \frac{m^4}{k^3} + \frac{1}{3} \frac{m^6}{k^5} - \frac{m^8}{k^7} \right) \Bigg) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{16\pi^2} \left(-\frac{1}{192} m + \frac{35}{144} \frac{m^3}{k^2} + \frac{25}{12} \frac{m^5}{k^4} - 3 \frac{m^7}{k^6} \right) + \right. \\
& + \frac{T}{16\pi} \left(-\frac{1}{768} k + \frac{1}{16} \frac{m^2}{k} - \frac{5}{8} \frac{m^4}{k^3} + \frac{7}{3} \frac{m^6}{k^5} - 3 \frac{m^8}{k^7} \right) \Bigg) \quad (4.397)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;5D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{4i}{15\pi^2} m^5 \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{15\pi^2} \left(-4k^2 m^5 + \frac{64}{7} m^7 \right) \right) + \eta_{\mu\nu}^3 \left(\frac{32i}{105\pi^2} m^7 \right) \quad (4.398)
\end{aligned}$$

Fermions, spin 3 x 3, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{f,t}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{15\pi^3} \left(\left(-\frac{1021}{52920} + \frac{L_0}{168} \right) k^2 + \left(\frac{317}{1470} - \frac{L_0}{14} \right) m^2 + \right. \right. \\
& + \left(-\frac{77}{120} + \frac{L_0}{4} \right) \frac{m^4}{k^2} - \frac{32}{63} \frac{m^6}{k^4} + \frac{32}{21} \frac{m^8}{k^6} \Bigg) + \\
& + \frac{iS}{21\pi^3} \left(\frac{1}{60} k - \frac{1}{6} \frac{m^2}{k} + \frac{2}{5} \frac{m^4}{k^3} + \frac{8}{15} \frac{m^6}{k^5} - \frac{32}{15} \frac{m^8}{k^7} \right) \Bigg) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{3\pi^3} \left(\frac{1}{5040} k^2 + \left(-\frac{457}{29400} + \frac{L_0}{280} \right) m^2 + \right. \right. \\
& + \left(\frac{779}{4200} - \frac{L_0}{20} \right) \frac{m^4}{k^2} - \frac{8}{21} \frac{m^6}{k^4} + \frac{16}{35} \frac{m^8}{k^6} \Bigg) +
\end{aligned}$$

$$+ \frac{iS}{35\pi^3} \left(\frac{1}{12} \frac{m^2}{k} - \frac{m^4}{k^3} + 4 \frac{m^6}{k^5} - \frac{16}{3} \frac{m^8}{k^7} \right) \quad (4.399)$$

$$\begin{aligned} \tilde{T}_{3,3;6D}^{\text{f,nt}} = & (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{12\pi^3} m^6 \right) + \\ & + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{6\pi^3} \left(\frac{L_3}{2} k^2 m^6 - L_4 m^8 \right) \right) + \eta_{\mu\nu}^3 \left(-\frac{iL_4}{12\pi^3} m^8 \right) \end{aligned} \quad (4.400)$$

Fermions, spin 3 x 5, dimension 3:

$$\begin{aligned} \tilde{T}_{3,5;3D}^{\text{f,t}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{4\pi} \left(-\frac{3}{16} \frac{m}{k^2} + \frac{3}{4} \frac{m^3}{k^4} - \frac{31}{3} \frac{m^5}{k^6} + 20 \frac{m^7}{k^8} \right) + \right. \\ & + T \left(-\frac{3}{256} \frac{1}{k} + \frac{1}{16} \frac{m^2}{k^3} + \frac{3}{8} \frac{m^4}{k^5} - 3 \frac{m^6}{k^7} + 5 \frac{m^8}{k^9} \right) \Bigg) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{4\pi} \left(\frac{7}{64} \frac{m}{k^2} + \frac{155}{48} \frac{m^3}{k^4} - \frac{47}{4} \frac{m^5}{k^6} + 15 \frac{m^7}{k^8} \right) + \right. \\ & + T \left(\frac{7}{1024} \frac{1}{k} - \frac{9}{64} \frac{m^2}{k^3} + \frac{33}{32} \frac{m^4}{k^5} - \frac{13}{4} \frac{m^6}{k^7} + \frac{15}{4} \frac{m^8}{k^9} \right) \Bigg) + \\ & + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{\pi} \left(\frac{3}{4} \frac{m^2}{k^2} - \frac{8}{3} \frac{m^4}{k^4} + 4 \frac{m^6}{k^6} \right) + \right. \\ & + iT \left(\frac{1}{16} \frac{m}{k} - \frac{3}{4} \frac{m^3}{k^3} + 3 \frac{m^5}{k^5} - 4 \frac{m^7}{k^7} \right) \Bigg) + \\ & + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi} \left(-\frac{1}{16} \frac{m^2}{k^2} - \frac{2}{3} \frac{m^4}{k^4} + \frac{m^6}{k^6} \right) + \right. \\ & + iT \left(\frac{1}{64} \frac{m}{k} - \frac{3}{16} \frac{m^3}{k^3} + \frac{3}{4} \frac{m^5}{k^5} - \frac{m^7}{k^7} \right) \Bigg) \end{aligned} \quad (4.401)$$

$$\begin{aligned} \tilde{T}_{3,5;3D}^{\text{f,nt}} = & (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{8i}{3\pi} m^3 \right) + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(-\frac{4i}{3\pi} m^3 \right) + \\ & + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{\pi} \left(\frac{4}{3} k^2 m^3 - \frac{32}{5} m^5 \right) \right) + \\ & + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{8}{3} k^2 m^3 - \frac{64}{5} m^5 \right) \right) + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{64i}{5\pi} m^5 \right) + \\ & + k_\nu^2 \eta_{\mu\nu}^3 \left(-\frac{64i}{15\pi} m^5 \right) + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi} \left(-\frac{4}{3} k^4 m^3 + \frac{32}{5} k^2 m^5 - \frac{64}{5} m^7 \right) \right) + \\ & + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{5\pi} \left(\frac{64}{3} k^2 m^5 - \frac{512}{7} m^7 \right) \right) + k_\mu^2 k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{1}{\pi} m^2 \right) + \\ & + k_\mu k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{2}{\pi} m^2 \right) + k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{8}{3\pi} m^4 \right) + \\ & + k_\mu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{4}{3\pi} m^4 \right) + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{1}{3\pi} (6k^2 m^2 - 32m^4) \right) + \\ & + k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \left(\frac{1}{3\pi} (3k^2 m^2 - 16m^4) \right) + \end{aligned}$$

$$\begin{aligned}
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{1}{\pi} \left(\frac{4}{3} k^2 m^4 - \frac{16}{5} m^6 \right) \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{1}{\pi} \left(-k^4 m^2 + \frac{16}{3} k^2 m^4 - \frac{64}{5} m^6 \right) \right)
\end{aligned} \tag{4.402}$$

Fermions, spin 3 x 5, dimension 4:

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{f,t}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^2} \left(\left(\frac{1937}{14175} - \frac{2L_0}{45} \right) + \left(-\frac{1622}{1575} + \frac{2L_0}{5} \right) \frac{m^2}{k^2} - \frac{32}{15} \frac{m^4}{k^4} + \right. \right. \\
& \left. \left. + \frac{2432}{135} \frac{m^6}{k^6} - \frac{256}{9} \frac{m^8}{k^8} \right) \right) + \\
& + \frac{iS}{3\pi^2} \left(-\frac{4}{105} \frac{1}{k} + \frac{4}{15} \frac{m^2}{k^3} + \frac{16}{35} \frac{m^4}{k^5} - \frac{704}{105} \frac{m^6}{k^7} + \frac{256}{21} \frac{m^8}{k^9} \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{1231}{132300} + \frac{L_0}{420} \right) + \left(\frac{258}{1225} - \frac{2L_0}{35} \right) \frac{m^2}{k^2} - \frac{104}{105} \frac{m^4}{k^4} + \right. \right. \\
& \left. \left. + \frac{128}{45} \frac{m^6}{k^6} - \frac{64}{21} \frac{m^8}{k^8} \right) \right) + \\
& + \frac{iS}{\pi^2} \left(\frac{1}{210} \frac{1}{k} - \frac{11}{105} \frac{m^2}{k^3} + \frac{4}{5} \frac{m^4}{k^5} - \frac{272}{105} \frac{m^6}{k^7} + \frac{64}{21} \frac{m^8}{k^9} \right)
\end{aligned} \tag{4.403}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{f,nt}} = & (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{iL_2}{\pi^2} m^4 \right) + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(\frac{iL_2}{2\pi^2} m^4 \right) + \\
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{2\pi^2} (-L_2 k^2 m^4 + 4L_3 m^6) \right) + \\
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} (-L_2 k^2 m^4 + 4L_3 m^6) \right) + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{4iL_3}{\pi^2} m^6 \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{4iL_3}{3\pi^2} m^6 \right) + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{2\pi^2} (L_2 k^4 m^4 - 4L_3 k^2 m^6 + 7L_4 m^8) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{3\pi^2} (-4L_3 k^2 m^6 + 12L_4 m^8) \right)
\end{aligned} \tag{4.404}$$

Fermions, spin 3 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{\text{f,t}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{1}{512} m + \frac{1}{48} \frac{m^3}{k^2} - \frac{3}{80} \frac{m^5}{k^4} + \frac{1}{3} \frac{m^7}{k^6} - \frac{1}{2} \frac{m^9}{k^8} \right) + \right. \\
& \left. + \frac{T}{2\pi} \left(-\frac{1}{1024} k + \frac{3}{256} \frac{m^2}{k} - \frac{1}{32} \frac{m^4}{k^3} - \frac{1}{8} \frac{m^6}{k^5} + \frac{3}{4} \frac{m^8}{k^7} - \frac{m^{10}}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{8\pi^2} \left(\frac{1}{256} m - \frac{5}{48} \frac{m^3}{k^2} - \frac{137}{120} \frac{m^5}{k^4} + 3 \frac{m^7}{k^6} - 3 \frac{m^9}{k^8} \right) + \right. \\
& \left. + \frac{T}{8\pi} \left(\frac{1}{1024} k - \frac{7}{256} \frac{m^2}{k} + \frac{9}{32} \frac{m^4}{k^3} - \frac{11}{8} \frac{m^6}{k^5} + \frac{13}{4} \frac{m^8}{k^7} - 3 \frac{m^{10}}{k^9} \right) \right)
\end{aligned} \tag{4.405}$$

$$\tilde{T}_{3,5;5D}^{\text{f,nt}} = (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{8i}{15\pi^2} m^5 \right) + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(\frac{4i}{15\pi^2} m^5 \right) +$$

$$\begin{aligned}
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{5\pi^2} \left(-\frac{4}{3} k^2 m^5 + \frac{32}{7} m^7 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(-\frac{8}{3} k^2 m^5 + \frac{64}{7} m^7 \right) \right) + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{64i}{35\pi^2} m^7 \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{64i}{105\pi^2} m^7 \right) + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\frac{4}{3} k^4 m^5 - \frac{32}{7} k^2 m^7 + \frac{64}{9} m^9 \right) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{105\pi^2} \left(-64 k^2 m^7 + \frac{512}{3} m^9 \right) \right) \quad (4.406)
\end{aligned}$$

Fermions, spin 3 x 5, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{\text{f,t}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{7\pi^3} \left(\left(\frac{11861}{2286900} - \frac{L_0}{660} \right) k^2 + \left(-\frac{11126}{155925} + \frac{L_0}{45} \right) m^2 + \right. \right. \\
& + \left. \left(\frac{19067}{69300} - \frac{L_0}{10} \right) \frac{m^4}{k^2} + \frac{32}{99} \frac{m^6}{k^4} - \frac{3008}{1485} \frac{m^8}{k^6} + \frac{256}{99} \frac{m^{10}}{k^8} \right) + \\
& + \frac{iS}{33\pi^3} \left(-\frac{1}{70} k + \frac{19}{105} \frac{m^2}{k} - \frac{64}{105} \frac{m^4}{k^3} - \frac{32}{35} \frac{m^6}{k^5} + \frac{128}{15} \frac{m^8}{k^7} - \frac{256}{21} \frac{m^{10}}{k^9} \right) \Bigg) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{7\pi^3} \left(\left(-\frac{29497}{27442800} + \frac{L_0}{3960} \right) k^2 + \left(\frac{13751}{415800} - \frac{L_0}{120} \right) m^2 + \right. \right. \\
& + \left. \left(-\frac{8689}{23100} + \frac{L_0}{10} \right) \frac{m^4}{k^2} + \frac{1504}{1485} \frac{m^6}{k^4} - \frac{368}{165} \frac{m^8}{k^6} + \frac{64}{33} \frac{m^{10}}{k^8} \right) + \\
& + \frac{iS}{33\pi^3} \left(\frac{1}{420} k - \frac{31}{420} \frac{m^2}{k} + \frac{4}{5} \frac{m^4}{k^3} - \frac{424}{105} \frac{m^6}{k^5} + \frac{1024}{105} \frac{m^8}{k^7} - \frac{64}{7} \frac{m^{10}}{k^9} \right) \Bigg) \quad (4.407)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{\text{f,nt}} = & (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{6\pi^3} m^6 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\nu\nu}^2) \left(-\frac{iL_3}{12\pi^3} m^6 \right) + \\
& + (k_\mu k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 + k_\mu^2 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{4\pi^3} \left(\frac{L_3}{3} k^2 m^6 - L_4 m^8 \right) \right) + \\
& + k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi^3} \left(\frac{L_3}{3} k^2 m^6 - L_4 m^8 \right) \right) + k_\mu k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{iL_4}{2\pi^3} m^8 \right) + \\
& + k_\nu^2 \eta_{\mu\nu}^3 \left(-\frac{iL_4}{6\pi^3} m^8 \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^3} \left(-\frac{L_3}{3} k^4 m^6 + L_4 k^2 m^8 - \frac{7L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{\pi^3} \left(\frac{L_4}{6} k^2 m^8 - \frac{2L_5}{5} m^{10} \right) \right) \quad (4.408)
\end{aligned}$$

Fermions, spin 4 x 4, dimension 3:

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{\text{f,t}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{2\pi} \left(-\frac{1}{16} \frac{m}{k^2} - \frac{11}{12} \frac{m^3}{k^4} - \frac{5}{3} \frac{m^5}{k^6} + 4 \frac{m^7}{k^8} \right) + \right. \\
& + T \left(-\frac{1}{128} \frac{1}{k} + \frac{1}{16} \frac{m^2}{k^3} - \frac{m^6}{k^7} + 2 \frac{m^8}{k^9} \right) \Bigg) +
\end{aligned}$$

$$\begin{aligned}
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{8\pi} \left(13 \frac{m^3}{k^4} - 32 \frac{m^5}{k^6} + 48 \frac{m^7}{k^8} \right) + \right. \\
& \quad \left. + T \left(-\frac{3}{32} \frac{m^2}{k^3} + \frac{9}{8} \frac{m^4}{k^5} - \frac{9}{2} \frac{m^6}{k^7} + 6 \frac{m^8}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{4\pi} \left(\frac{3}{64} \frac{m}{k^2} - \frac{11}{16} \frac{m^3}{k^4} - \frac{11}{4} \frac{m^5}{k^6} + 3 \frac{m^7}{k^8} \right) + \right. \\
& \quad \left. + T \left(\frac{3}{1024} \frac{1}{k} - \frac{3}{64} \frac{m^2}{k^3} + \frac{9}{32} \frac{m^4}{k^5} - \frac{3}{4} \frac{m^6}{k^7} + \frac{3}{4} \frac{m^8}{k^9} \right) \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^3 \left(\frac{1}{\pi} \left(\frac{7}{8} \frac{m^2}{k^2} - \frac{4}{3} \frac{m^4}{k^4} + 2 \frac{m^6}{k^6} \right) + \right. \\
& \quad \left. + iT \left(\frac{1}{32} \frac{m}{k} - \frac{3}{8} \frac{m^3}{k^3} + \frac{3}{2} \frac{m^5}{k^5} - 2 \frac{m^7}{k^7} \right) \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{1}{16\pi} \left(-3 \frac{m^2}{k^2} - 32 \frac{m^4}{k^4} + 48 \frac{m^6}{k^6} \right) + \right. \\
& \quad \left. + iT \left(\frac{3}{64} \frac{m}{k} - \frac{9}{16} \frac{m^3}{k^3} + \frac{9}{4} \frac{m^5}{k^5} - 3 \frac{m^7}{k^7} \right) \right)
\end{aligned} \tag{4.409}$$

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{\text{f,nt}} & = k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{2i}{\pi} m^3 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{4i}{\pi} m^3 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{2i}{\pi} m^3 \right) + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{16i}{5\pi} m^5 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi} (4k^2 m^3 - 16m^5) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{\pi} (2k^2 m^3 - 8m^5) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{3\pi} \left(-8k^2 m^3 - \frac{64}{5} m^5 \right) \right) + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(8k^2 m^5 - \frac{96}{7} m^7 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{5\pi} (-10k^4 m^3 + 40k^2 m^5 - 96m^7) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{\pi} \left(\frac{2}{3} k^4 m^3 + \frac{16}{15} k^2 m^5 - \frac{192}{35} m^7 \right) \right) + k_\mu^2 k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{3}{\pi} m^2 \right) + \\
& + (k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} + k_\mu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{4}{\pi} m^4 \right) + \\
& + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \left(\frac{1}{\pi} (3k^2 m^2 - 8m^4) \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{1}{5\pi} (20k^2 m^4 - 48m^6) \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^3 \left(\frac{1}{\pi} \left(-k^4 m^2 + \frac{8}{3} k^2 m^4 - \frac{32}{5} m^6 \right) \right)
\end{aligned} \tag{4.410}$$

Fermions, spin 4 x 4, dimension 4:

$$\tilde{T}_{4,4;4D}^{\text{f,t}} = k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\left(\frac{50}{3969} - \frac{L_0}{252} \right) + \left(-\frac{2713}{22050} + \frac{3L_0}{70} \right) \frac{m^2}{k^2} + \right. \right.$$

$$\begin{aligned}
& + \left(-\frac{817}{4200} + \frac{3L_0}{20} \right) \frac{m^4}{k^4} + \frac{160}{189} \frac{m^6}{k^6} - \frac{512}{315} \frac{m^8}{k^8} \Big) + \\
& + \frac{iS}{3\pi^2} \left(-\frac{1}{42} \frac{1}{k} + \frac{22}{105} \frac{m^2}{k^3} - \frac{8}{35} \frac{m^4}{k^5} - \frac{32}{15} \frac{m^6}{k^7} + \frac{512}{105} \frac{m^8}{k^9} \right) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\nu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(\frac{62}{6615} - \frac{L_0}{168} \right) + \left(\frac{1651}{2940} - \frac{3L_0}{28} \right) \frac{m^2}{k^2} - \right. \right. \\
& \quad \left. \left. - \left(\frac{421}{140} + \frac{3L_0}{2} \right) \frac{m^4}{k^4} + \frac{176}{9} \frac{m^6}{k^6} - \frac{512}{21} \frac{m^8}{k^8} \right) + \right. \\
& \quad \left. + \frac{iS}{\pi^2} \left(-\frac{1}{420} \frac{1}{k} - \frac{1}{21} \frac{m^2}{k^3} + \frac{4}{5} \frac{m^4}{k^5} - \frac{368}{105} \frac{m^6}{k^7} + \frac{512}{105} \frac{m^8}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(-\frac{563}{26460} + \frac{L_0}{168} \right) + \left(\frac{1091}{2940} - \frac{3L_0}{28} \right) \frac{m^2}{k^2} + \right. \right. \\
& \quad \left. \left. + \left(-\frac{699}{280} + \frac{3L_0}{4} \right) \frac{m^4}{k^4} + \frac{208}{63} \frac{m^6}{k^6} - \frac{64}{21} \frac{m^8}{k^8} \right) + \right. \\
& \quad \left. + \frac{iS}{35\pi^2} \left(\frac{1}{12} \frac{1}{k} - \frac{4}{3} \frac{m^2}{k^3} + 8 \frac{m^4}{k^5} - \frac{64}{3} \frac{m^6}{k^7} + \frac{64}{3} \frac{m^8}{k^9} \right) \right) \tag{4.411}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;4D}^{\text{f,nt}} &= k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{3iL_2}{4\pi^2} m^4 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{3iL_2}{2\pi^2} m^4 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(-\frac{3iL_2}{4\pi^2} m^4 \right) + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{iL_3}{\pi^2} m^6 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi^2} (-3L_2 k^2 m^4 + 10L_3 m^6) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{2\pi^2} \left(-\frac{3L_2}{2} k^2 m^4 + 5L_3 m^6 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{3\pi^2} (3L_2 k^2 m^4 + 4L_3 m^6) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{2\pi^2} \left(-L_3 k^2 m^6 + \frac{3L_4}{2} m^8 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{2\pi^2} \left(\frac{3L_2}{2} k^4 m^4 - 5L_3 k^2 m^6 + \frac{21L_4}{2} m^8 \right) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(-\frac{L_2}{4} k^4 m^4 - \frac{L_3}{3} k^2 m^6 + \frac{3L_4}{2} m^8 \right) \right) \tag{4.412}
\end{aligned}$$

Fermions, spin 4 x 4, dimension 5:

$$\begin{aligned}
\tilde{T}_{4,4;5D}^{\text{f,t}} &= k^8 \pi_{\mu\nu}^4 \left(\frac{i}{5\pi^2} \left(-\frac{3}{512} m + \frac{9}{128} \frac{m^3}{k^2} + \frac{211}{480} \frac{m^5}{k^4} + \frac{13}{24} \frac{m^7}{k^6} - \frac{m^9}{k^8} \right) + \right. \\
& \quad \left. + \frac{T}{\pi} \left(-\frac{3}{10240} k + \frac{1}{256} \frac{m^2}{k} - \frac{1}{64} \frac{m^4}{k^3} + \frac{1}{8} \frac{m^8}{k^7} - \frac{1}{5} \frac{m^{10}}{k^9} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\nu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(-\frac{3}{1024} m - \frac{1}{256} \frac{m^3}{k^2} - \frac{493}{320} \frac{m^5}{k^4} + \frac{41}{16} \frac{m^7}{k^6} - 3 \frac{m^9}{k^8} \right) + \right. \\
& \quad \left. + \frac{T}{\pi} \left(-\frac{3}{20480} k + \frac{3}{128} \frac{m^4}{k^3} - \frac{3}{16} \frac{m^6}{k^5} + \frac{9}{16} \frac{m^8}{k^7} - \frac{3}{5} \frac{m^{10}}{k^9} \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\frac{3}{2048} m - \frac{7}{256} \frac{m^3}{k^2} + \frac{1}{5} \frac{m^5}{k^4} + \frac{7}{16} \frac{m^7}{k^6} - \frac{3}{8} \frac{m^9}{k^8} \right) + \right. \\
& \left. + \frac{T}{8\pi} \left(\frac{3}{5120} k - \frac{3}{256} \frac{m^2}{k} + \frac{3}{32} \frac{m^4}{k^3} - \frac{3}{8} \frac{m^6}{k^5} + \frac{3}{4} \frac{m^8}{k^7} - \frac{3}{5} \frac{m^{10}}{k^9} \right) \right) \quad (4.413)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;5D}^{\text{f,nt}} &= k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{2i}{5\pi^2} m^5 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{4i}{5\pi^2} m^5 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(-\frac{2i}{5\pi^2} m^5 \right) + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{16i}{35\pi^2} m^7 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{4}{5} k^2 m^5 + \frac{16}{7} m^7 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{\pi^2} \left(-\frac{2}{5} k^2 m^5 + \frac{8}{7} m^7 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{15\pi^2} \left(8k^2 m^5 + \frac{64}{7} m^7 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{35\pi^2} \left(-8k^2 m^7 + \frac{32}{3} m^9 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{2}{5} k^4 m^5 - \frac{8}{7} k^2 m^7 + \frac{32}{15} m^9 \right) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{15\pi^2} \left(-2k^4 m^5 - \frac{16}{7} k^2 m^7 + \frac{64}{7} m^9 \right) \right) \quad (4.414)
\end{aligned}$$

Fermions, spin 4 x 4, dimension 6:

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{\text{f,t}} &= k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^3} \left(\left(\frac{859}{1960200} - \frac{L_0}{7920} \right) k^2 + \left(-\frac{11441}{1746360} + \frac{L_0}{504} \right) m^2 + \right. \right. \\
& + \left(\frac{62801}{1940400} - \frac{3L_0}{280} \right) \frac{m^4}{k^2} + \left(\frac{35171}{831600} - \frac{L_0}{40} \right) \frac{m^6}{k^4} - \frac{992}{10395} \frac{m^8}{k^6} + \\
& \left. + \frac{512}{3465} \frac{m^{10}}{k^8} \right) + \\
& + \frac{iS}{55\pi^3} \left(-\frac{1}{72} k + \frac{4}{21} \frac{m^2}{k} - \frac{52}{63} \frac{m^4}{k^3} + \frac{32}{63} \frac{m^6}{k^5} + \frac{32}{7} \frac{m^8}{k^7} - \frac{512}{63} \frac{m^{10}}{k^9} \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{5353}{21344400} - \frac{L_0}{12320} \right) k^2 + \left(-\frac{6401}{5821200} + \frac{L_0}{1680} \right) m^2 + \right. \right. \\
& + \left(-\frac{35867}{1293600} + \frac{3L_0}{560} \right) \frac{m^4}{k^2} + \left(\frac{967}{15400} + \frac{L_0}{20} \right) \frac{m^6}{k^4} - \frac{304}{693} \frac{m^8}{k^6} + \\
& \left. + \frac{512}{1155} \frac{m^{10}}{k^8} \right) + \\
& + \frac{iS}{55\pi^3} \left(-\frac{1}{112} k + \frac{1}{21} \frac{m^2}{k} + \frac{2}{3} \frac{m^4}{k^3} - \frac{48}{7} \frac{m^6}{k^5} + \frac{464}{21} \frac{m^8}{k^7} - \frac{512}{21} \frac{m^{10}}{k^9} \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^3} \left(\left(-\frac{1627}{3201660} + \frac{L_0}{7392} \right) k^2 + \left(\frac{12701}{1164240} - \frac{L_0}{336} \right) m^2 + \right. \right. \\
& \left. + \left(-\frac{24667}{258720} + \frac{3L_0}{112} \right) \frac{m^4}{k^2} + \left(\frac{23777}{55440} - \frac{L_0}{8} \right) \frac{m^6}{k^4} - \frac{256}{693} \frac{m^8}{k^6} + \right.
\end{aligned}$$

$$\begin{aligned}
& + \frac{64}{231} \frac{m^{10}}{k^8} \Big) + \\
& + \frac{iS}{231\pi^3} \left(\frac{1}{80}k - \frac{1}{4} \frac{m^2}{k} + 2 \frac{m^4}{k^3} - 8 \frac{m^6}{k^5} + 16 \frac{m^8}{k^7} - \frac{64}{5} \frac{m^{10}}{k^9} \right) \Big) \quad (4.415)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{\text{f,nt}} = & k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_3}{8\pi^3} m^6 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{4\pi^3} m^6 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^2 \left(\frac{iL_3}{8\pi^3} m^6 \right) + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{iL_4}{8\pi^3} m^8 \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{4\pi^3} \left(L_3 k^2 m^6 - \frac{5L_4}{2} m^8 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{8\pi^3} \left(L_3 k^2 m^6 - \frac{5L_4}{2} m^8 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^3 \left(\frac{i}{6\pi^3} (-L_3 k^2 m^6 - L_4 m^8) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{8\pi^3} \left(\frac{L_4}{2} k^2 m^8 - \frac{3L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{8\pi^3} \left(-L_3 k^4 m^6 + \frac{5L_4}{2} k^2 m^8 - \frac{21L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\nu}^4 \left(\frac{i}{4\pi^3} \left(\frac{L_3}{6} k^4 m^6 + \frac{L_4}{6} k^2 m^8 - \frac{3L_5}{5} m^{10} \right) \right) \quad (4.416)
\end{aligned}$$

Fermions, spin 5 x 5, dimension 3:

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{\text{f,t}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi} \left(\frac{1}{64} \frac{m}{k^2} + \frac{7}{6} \frac{m^3}{k^4} + \frac{3}{10} \frac{m^5}{k^6} - \frac{8}{3} \frac{m^7}{k^8} + 4 \frac{m^9}{k^{10}} \right) + \right. \\
& + T \left(\frac{1}{256} \frac{1}{k} - \frac{3}{64} \frac{m^2}{k^3} + \frac{1}{8} \frac{m^4}{k^5} + \frac{1}{2} \frac{m^6}{k^7} - 3 \frac{m^8}{k^9} + 4 \frac{m^{10}}{k^{11}} \right) \Big) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{1}{64} \frac{m}{k^2} - \frac{31}{12} \frac{m^3}{k^4} + \frac{31}{6} \frac{m^5}{k^6} - \frac{52}{3} \frac{m^7}{k^8} + 20 \frac{m^9}{k^{10}} \right) + \right. \\
& + T \left(\frac{1}{256} \frac{1}{k} + \frac{1}{64} \frac{m^2}{k^3} - \frac{7}{8} \frac{m^4}{k^5} + \frac{13}{2} \frac{m^6}{k^7} - 19 \frac{m^8}{k^9} + 20 \frac{m^{10}}{k^{11}} \right) \Big) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(-\frac{9}{256} \frac{m}{k^2} + \frac{3}{4} \frac{m^3}{k^4} + \frac{53}{8} \frac{m^5}{k^6} - 16 \frac{m^7}{k^8} + 15 \frac{m^9}{k^{10}} \right) + \right. \\
& + T \left(-\frac{9}{2048} \frac{1}{k} + \frac{51}{512} \frac{m^2}{k^3} - \frac{57}{64} \frac{m^4}{k^5} + \frac{63}{16} \frac{m^6}{k^7} - \frac{69}{8} \frac{m^8}{k^9} + \frac{15}{2} \frac{m^{10}}{k^{11}} \right) \Big) + \\
& + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^4 \left(\frac{1}{\pi} \left(-\frac{15}{16} \frac{m^2}{k^2} + \frac{5}{12} \frac{m^4}{k^4} - \frac{11}{3} \frac{m^6}{k^6} + 4 \frac{m^8}{k^8} \right) + \right. \\
& + iT \left(-\frac{1}{64} \frac{m}{k} + \frac{1}{4} \frac{m^3}{k^3} - \frac{3}{2} \frac{m^5}{k^5} + 4 \frac{m^7}{k^7} - 4 \frac{m^9}{k^9} \right) \Big) + \\
& + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{4\pi} \left(\frac{3}{4} \frac{m^2}{k^2} + 21 \frac{m^4}{k^4} - 44 \frac{m^6}{k^6} + 48 \frac{m^8}{k^8} \right) + \right. \\
& + iT \left(-\frac{3}{64} \frac{m}{k} + \frac{3}{4} \frac{m^3}{k^3} - \frac{9}{2} \frac{m^5}{k^5} + 12 \frac{m^7}{k^7} - 12 \frac{m^9}{k^9} \right) \Big) +
\end{aligned}$$

$$\begin{aligned}
& + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{1}{2\pi} \left(\frac{3}{64} \frac{m^2}{k^2} - \frac{11}{16} \frac{m^4}{k^4} - \frac{11}{4} \frac{m^6}{k^6} + 3 \frac{m^8}{k^8} \right) + \right. \\
& \left. + iT \left(-\frac{3}{512} \frac{m}{k} + \frac{3}{32} \frac{m^3}{k^3} - \frac{9}{16} \frac{m^5}{k^5} + \frac{3}{2} \frac{m^7}{k^7} - \frac{3}{2} \frac{m^9}{k^9} \right) \right) \quad (4.417)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{\text{f,nt}} = & k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{8i}{3\pi} m^3 \right) + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{8i}{\pi} m^3 \right) + \\
& + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{16i}{3\pi} m^3 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{64i}{5\pi} m^5 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(-\frac{32i}{5\pi} m^5 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi} (40k^2 m^3 - 256m^5) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{5\pi} (40k^2 m^3 - 128m^5) \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{3\pi} \left(-32k^2 m^3 - \frac{128}{5} m^5 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(32k^2 m^5 - \frac{704}{7} m^7 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{5\pi} \left(64k^2 m^5 - \frac{1408}{7} m^7 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{5\pi} \left(-40k^4 m^3 + 128k^2 m^5 - \frac{4096}{7} m^7 \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{3\pi} \left(-8k^4 m^3 + \frac{128}{5} k^2 m^5 - \frac{4096}{35} m^7 \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{3\pi} \left(20k^4 m^3 - \frac{512}{7} m^7 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(-32k^4 m^5 + \frac{704}{7} k^2 m^7 - \frac{1024}{7} m^9 \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{3\pi} \left(8k^6 m^3 - \frac{128}{5} k^4 m^5 + \frac{4096}{35} k^2 m^7 - \frac{22528}{105} m^9 \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{3\pi} \left(-4k^6 m^3 + \frac{512}{35} k^2 m^7 - \frac{4096}{105} m^9 \right) \right) + \\
& + k_\mu^3 k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{4}{\pi} m^2 \right) + k_\mu^2 k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{8}{\pi} m^4 \right) + \\
& + (k_\mu k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^3 k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{16}{\pi} m^4 \right) + \\
& + k_\mu^2 k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \left(\frac{1}{\pi} (6k^2 m^2 - 16m^4) \right) + \\
& + (k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{32}{5\pi} m^6 \right) + \\
& + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{1}{5\pi} (80k^2 m^4 - 256m^6) \right) +
\end{aligned}$$

$$\begin{aligned}
& + (k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{1}{5\pi} (40k^2 m^4 - 128m^6) \right) + \\
& + k_\mu k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^3 \left(\frac{1}{3\pi} \left(-12k^4 m^2 + 16k^2 m^4 - \frac{512}{5} m^6 \right) \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{1}{5\pi} \left(16k^2 m^6 - \frac{192}{7} m^8 \right) \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{1}{5\pi} \left(-40k^4 m^4 + 128k^2 m^6 - \frac{1536}{7} m^8 \right) \right) + \\
& + (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^4 \left(\frac{1}{\pi} \left(k^6 m^2 - \frac{4}{3} k^4 m^4 + \frac{128}{15} k^2 m^6 - \frac{512}{35} m^8 \right) \right) \quad (4.418)
\end{aligned}$$

Fermions, spin 5 x 5, dimension 4:

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{\text{f,t}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{7\pi^2} \left(\left(-\frac{23722}{571725} + \frac{2L_0}{165} \right) + \left(\frac{89008}{155925} - \frac{8L_0}{45} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left. \left(\frac{211289}{69300} - \frac{27L_0}{10} \right) \frac{m^4}{k^4} - \frac{256}{99} \frac{m^6}{k^6} + \frac{24064}{1485} \frac{m^8}{k^8} - \frac{2048}{99} \frac{m^{10}}{k^{10}} \right) + \\
& + \frac{iS}{33\pi^2} \left(\frac{4}{35} \frac{1}{k} - \frac{152}{105} \frac{m^2}{k^3} + \frac{512}{105} \frac{m^4}{k^5} + \frac{256}{35} \frac{m^6}{k^7} - \frac{1024}{15} \frac{m^8}{k^9} + \frac{2048}{21} \frac{m^{10}}{k^{11}} \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{83338}{12006225} + \frac{8L_0}{3465} \right) + \left(\frac{13004}{1091475} - \frac{4L_0}{315} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left. \left(-\frac{99289}{242550} + \frac{27L_0}{35} \right) \frac{m^4}{k^4} - \frac{55808}{10395} \frac{m^6}{k^6} + \frac{22016}{1485} \frac{m^8}{k^8} - \frac{10240}{693} \frac{m^{10}}{k^{10}} \right) + \\
& + \frac{iS}{99\pi^2} \left(\frac{16}{35} \frac{1}{k} - \frac{8}{5} \frac{m^2}{k^3} - \frac{1664}{35} \frac{m^4}{k^5} + \frac{15104}{35} \frac{m^6}{k^7} - \frac{47104}{35} \frac{m^8}{k^9} + \right. \\
& + \left. \frac{10240}{7} \frac{m^{10}}{k^{11}} \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{13511}{2286900} - \frac{L_0}{660} \right) + \left(-\frac{52379}{363825} + \frac{4L_0}{105} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left. \left(\frac{227603}{161700} - \frac{27L_0}{70} \right) \frac{m^4}{k^4} - \frac{11552}{3465} \frac{m^6}{k^6} + \frac{23488}{3465} \frac{m^8}{k^8} - \frac{1280}{231} \frac{m^{10}}{k^{10}} \right) + \\
& + \frac{iS}{11\pi^2} \left(-\frac{1}{30} \frac{1}{k} + \frac{27}{35} \frac{m^2}{k^3} - \frac{736}{105} \frac{m^4}{k^5} + \frac{3296}{105} \frac{m^6}{k^7} - \frac{2432}{35} \frac{m^8}{k^9} + \frac{1280}{21} \frac{m^{10}}{k^{11}} \right) \Bigg) \quad (4.419)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{\text{f,nt}} = & k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_2}{\pi^2} m^4 \right) + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{3iL_2}{\pi^2} m^4 \right) + \\
& + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(-\frac{2iL_2}{\pi^2} m^4 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{4iL_3}{\pi^2} m^6 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{2iL_3}{\pi^2} m^6 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{\pi^2} (-3L_2 k^2 m^4 + 16L_3 m^6) \right) +
\end{aligned}$$

$$\begin{aligned}
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{\pi^2} (-3L_2 k^2 m^4 + 8L_3 m^6) \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{3\pi^2} (12L_2 k^2 m^4 + 8L_3 m^6) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{2\pi^2} (-4L_3 k^2 m^6 + 11L_4 m^8) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{\pi^2} (-4L_3 k^2 m^6 + 11L_4 m^8) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{\pi^2} (3L_2 k^4 m^4 - 8L_3 k^2 m^6 + 32L_4 m^8) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{3\pi^2} (3L_2 k^4 m^4 - 8L_3 k^2 m^6 + 32L_4 m^8) \right) + \\
& + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(-\frac{5L_2}{2} k^4 m^4 + \frac{20L_4}{3} m^8 \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(2L_3 k^4 m^6 - \frac{11L_4}{2} k^2 m^8 + \frac{36L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{\pi^2} \left(-L_2 k^6 m^4 + \frac{8L_3}{3} k^4 m^6 - \frac{32L_4}{3} k^2 m^8 + \frac{88L_5}{5} m^{10} \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{\pi^2} \left(\frac{L_2}{2} k^6 m^4 - \frac{4L_4}{3} k^2 m^8 + \frac{16L_5}{5} m^{10} \right) \right) \tag{4.420}
\end{aligned}$$

Fermions, spin 5 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{\text{f,t}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi^2} \left(\frac{7}{15360} m - \frac{83}{11520} \frac{m^3}{k^2} - \frac{183}{800} \frac{m^5}{k^4} - \frac{1}{24} \frac{m^7}{k^6} + \frac{49}{180} \frac{m^9}{k^8} - \frac{1}{3} \frac{m^{11}}{k^{10}} \right) + \right. \\
& + \frac{T}{\pi} \left(\frac{7}{61440} k - \frac{1}{512} \frac{m^2}{k} + \frac{3}{256} \frac{m^4}{k^3} - \frac{1}{48} \frac{m^6}{k^5} - \frac{1}{16} \frac{m^8}{k^7} + \frac{3}{10} \frac{m^{10}}{k^9} - \right. \\
& \left. \left. - \frac{1}{3} \frac{m^{12}}{k^{11}} \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\frac{11}{15360} m - \frac{79}{11520} \frac{m^3}{k^2} + \frac{1223}{2400} \frac{m^5}{k^4} - \frac{27}{40} \frac{m^7}{k^6} + \frac{317}{180} \frac{m^9}{k^8} - \right. \right. \\
& \left. \left. - \frac{5}{3} \frac{m^{11}}{k^{10}} \right) \right) + \\
& + \frac{T}{\pi} \left(\frac{11}{61440} k - \frac{1}{512} \frac{m^2}{k} - \frac{1}{256} \frac{m^4}{k^3} + \frac{7}{48} \frac{m^6}{k^5} - \frac{13}{16} \frac{m^8}{k^7} + \frac{19}{10} \frac{m^{10}}{k^9} - \right. \\
& \left. \left. - \frac{5}{3} \frac{m^{12}}{k^{11}} \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{8\pi^2} \left(-\frac{13}{5120} m + \frac{257}{3840} \frac{m^3}{k^2} - \frac{569}{800} \frac{m^5}{k^4} - \frac{137}{40} \frac{m^7}{k^6} + \right. \right. \\
& \left. \left. + \frac{389}{60} \frac{m^9}{k^8} - 5 \frac{m^{11}}{k^{10}} \right) \right) + \\
& + \frac{T}{8\pi} \left(-\frac{13}{20480} k + \frac{9}{512} \frac{m^2}{k} - \frac{51}{256} \frac{m^4}{k^3} + \frac{19}{16} \frac{m^6}{k^5} - \frac{63}{16} \frac{m^8}{k^7} + \frac{69}{10} \frac{m^{10}}{k^9} - \right.
\end{aligned}$$

$$\left. -5 \frac{m^{12}}{k^{11}} \right) \right) \quad (4.421)$$

$$\begin{aligned} \tilde{T}_{5,5;5D}^{\text{f,nt}} = & k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{8i}{15\pi^2} m^5 \right) + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{8i}{5\pi^2} m^5 \right) + \\ & + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(-\frac{16i}{15\pi^2} m^5 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(\frac{64i}{35\pi^2} m^7 \right) + \\ & + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{32i}{35\pi^2} m^7 \right) + \\ & + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(-8k^2 m^5 + \frac{256}{7} m^7 \right) \right) + \\ & + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{5\pi^2} \left(-8k^2 m^5 + \frac{128}{7} m^7 \right) \right) + \\ & + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{15\pi^2} \left(32k^2 m^5 + \frac{128}{7} m^7 \right) \right) + \\ & + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{35\pi^2} \left(-32k^2 m^7 + \frac{704}{9} m^9 \right) \right) + \\ & + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{35\pi^2} \left(-64k^2 m^7 + \frac{1408}{9} m^9 \right) \right) + \\ & + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{5\pi^2} \left(8k^4 m^5 - \frac{128}{7} k^2 m^7 + \frac{4096}{63} m^9 \right) \right) + \\ & + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{15\pi^2} \left(8k^4 m^5 - \frac{128}{7} k^2 m^7 + \frac{4096}{63} m^9 \right) \right) + \\ & + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{3\pi^2} \left(-4k^4 m^5 + \frac{512}{63} m^9 \right) \right) + \\ & + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{35\pi^2} \left(32k^4 m^7 - \frac{704}{9} k^2 m^9 + \frac{1024}{11} m^{11} \right) \right) + \\ & + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{15\pi^2} \left(-8k^6 m^5 + \frac{128}{7} k^4 m^7 - \frac{4096}{63} k^2 m^9 + \frac{2048}{21} m^{11} \right) \right) + \\ & + \eta_{\mu\nu}^5 \left(\frac{i}{15\pi^2} \left(4k^6 m^5 - \frac{512}{63} k^2 m^9 + \frac{4096}{231} m^{11} \right) \right) \end{aligned} \quad (4.422)$$

Fermions, spin 5 x 5, dimension 6:

$$\begin{aligned} \tilde{T}_{5,5;6D}^{\text{f,t}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi^3} \left(\left(-\frac{659507}{4058104050} + \frac{2L_0}{45045} \right) k^2 + \left(\frac{158813}{52026975} - \frac{L_0}{1155} \right) m^2 + \right. \right. \\ & + \left(-\frac{299671}{14189175} + \frac{2L_0}{315} \right) \frac{m^4}{k^2} + \left(-\frac{3691967}{37837800} + \frac{9L_0}{140} \right) \frac{m^6}{k^4} + \frac{128}{3003} \frac{m^8}{k^6} - \\ & - \frac{4096}{19305} \frac{m^{10}}{k^8} + \frac{2048}{9009} \frac{m^{12}}{k^{10}} \Big) + \\ & + \frac{iS}{39\pi^3} \left(\frac{4}{1155} k - \frac{2}{33} \frac{m^2}{k} + \frac{8}{21} \frac{m^4}{k^3} - \frac{64}{77} \frac{m^6}{k^5} - \frac{256}{231} \frac{m^8}{k^7} + \frac{8704}{1155} \frac{m^{10}}{k^9} - \right. \\ & \left. \left. - \frac{2048}{231} \frac{m^{12}}{k^{11}} \right) \right) + \end{aligned}$$

$$\begin{aligned}
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{156833}{579729150} + \frac{L_0}{12870} \right) k^2 + \right. \right. \\
& \quad + \left(\frac{565952}{156080925} - \frac{4L_0}{3465} \right) m^2 + \left(-\frac{10061}{2579850} + \frac{L_0}{315} \right) \frac{m^4}{k^2} + \\
& \quad + \left(\frac{2347967}{18918900} - \frac{9L_0}{70} \right) \frac{m^6}{k^4} + \frac{82048}{135135} \frac{m^8}{k^6} - \frac{183296}{135135} \frac{m^{10}}{k^8} + \frac{10240}{9009} \frac{m^{12}}{k^{10}} \Bigg) + \\
& \quad + \frac{iS}{13\pi^3} \left(\frac{1}{495} k - \frac{2}{77} \frac{m^2}{k} + \frac{8}{231} \frac{m^4}{k^3} + \frac{64}{63} \frac{m^6}{k^5} - \frac{512}{77} \frac{m^8}{k^7} + \frac{18944}{1155} \frac{m^{10}}{k^9} - \right. \\
& \quad \left. - \frac{10240}{693} \frac{m^{12}}{k^{11}} \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(\frac{367291}{3607203600} - \frac{L_0}{40040} \right) k^2 + \right. \right. \\
& \quad + \left(-\frac{178613}{59459400} + \frac{L_0}{1320} \right) m^2 + \left(\frac{346921}{9459450} - \frac{L_0}{105} \right) \frac{m^4}{k^2} + \\
& \quad + \left(-\frac{91573}{382200} + \frac{9L_0}{140} \right) \frac{m^6}{k^4} + \frac{2416}{6435} \frac{m^8}{k^6} - \frac{27904}{45045} \frac{m^{10}}{k^8} + \frac{1280}{3003} \frac{m^{12}}{k^{10}} \Bigg) + \\
& \quad + \frac{iS}{143\pi^3} \left(-\frac{1}{140} k + \frac{17}{84} \frac{m^2}{k} - \frac{7}{3} \frac{m^4}{k^3} + \frac{296}{21} \frac{m^6}{k^5} - \frac{992}{21} \frac{m^8}{k^7} + \frac{8768}{105} \frac{m^{10}}{k^9} - \right. \\
& \quad \left. - \frac{1280}{21} \frac{m^{12}}{k^{11}} \right) \Bigg) \tag{4.423}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;6D}^{\text{f,nt}} &= k_\mu^3 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_3}{6\pi^3} m^6 \right) + (k_\mu^2 k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^4 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{iL_3}{2\pi^3} m^6 \right) + \\
& + k_\mu^3 k_\nu^3 \eta_{\mu\nu}^2 \left(\frac{iL_3}{3\pi^3} m^6 \right) + (k_\mu k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} + k_\mu^3 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2) \left(-\frac{iL_4}{2\pi^3} m^8 \right) + \\
& + (k_\nu^4 \eta_{\mu\mu}^2 \eta_{\mu\nu} + k_\mu^4 \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(-\frac{iL_4}{4\pi^3} m^8 \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{i}{2\pi^3} (L_3 k^2 m^6 - 4L_4 m^8) \right) + \\
& + (k_\mu k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 + k_\mu^3 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{i}{2\pi^3} (L_3 k^2 m^6 - 2L_4 m^8) \right) + \\
& + k_\mu^2 k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{i}{3\pi^3} (-2L_3 k^2 m^6 - L_4 m^8) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{i}{4\pi^3} \left(L_4 k^2 m^8 - \frac{11L_5}{5} m^{10} \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2) \left(\frac{i}{2\pi^3} \left(L_4 k^2 m^8 - \frac{11L_5}{5} m^{10} \right) \right) + \\
& + k_\mu k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{i}{\pi^3} \left(-\frac{L_3}{2} k^4 m^6 + L_4 k^2 m^8 - \frac{16L_5}{5} m^{10} \right) \right) + \\
& + (k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu}^3 + k_\mu^2 \eta_{\mu\nu}^3 \eta_{\nu\nu}) \left(\frac{i}{3\pi^3} \left(-\frac{L_3}{2} k^4 m^6 + L_4 k^2 m^8 - \frac{16L_5}{5} m^{10} \right) \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\mu k_\nu \eta_{\mu\nu}^4 \left(\frac{i}{3\pi^3} \left(\frac{5L_3}{4} k^4 m^6 - 2L_5 m^{10} \right) \right) + \\
& + \eta_{\mu\mu}^2 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(-\frac{L_4}{4} k^4 m^8 + \frac{11L_5}{20} k^2 m^{10} - \frac{3L_6}{5} m^{12} \right) \right) + \\
& + \eta_{\mu\mu} \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{i}{3\pi^3} \left(\frac{L_3}{2} k^6 m^6 - L_4 k^4 m^8 + \frac{16L_5}{5} k^2 m^{10} - \frac{22L_6}{5} m^{12} \right) \right) + \\
& + \eta_{\mu\nu}^5 \left(\frac{i}{3\pi^3} \left(-\frac{L_3}{4} k^6 m^6 + \frac{2L_5}{5} k^2 m^{10} - \frac{4L_6}{5} m^{12} \right) \right)
\end{aligned} \tag{4.424}$$

4.3.5 Expansions in UV and IR for fermions

Fermions, spin 0 x 0, dimension 3:

$$\tilde{T}_{0,0;3D}^{\text{f,UV}} = -\frac{1}{8}k + \frac{1}{2}\frac{m^2}{k} - \frac{4i}{3\pi}\frac{m^3}{k^2} - \frac{16i}{15\pi}\frac{m^5}{k^4} - \frac{64i}{35\pi}\frac{m^7}{k^6} - \frac{256i}{63\pi}\frac{m^9}{k^8} - \frac{1024i}{99\pi}\frac{m^{11}}{k^{10}} + \dots \tag{4.425}$$

$$\begin{aligned}
\tilde{T}_{0,0;3D}^{\text{f,IR}} = & \frac{i}{4\pi} \left(-4m + \frac{1}{3}\frac{k^2}{m} + \frac{1}{60}\frac{k^4}{m^3} + \frac{1}{560}\frac{k^6}{m^5} + \frac{1}{4032}\frac{k^8}{m^7} + \frac{1}{25344}\frac{k^{10}}{m^9} + \frac{1}{146432}\frac{k^{12}}{m^{11}} + \right. \\
& \left. + \dots \right)
\end{aligned} \tag{4.426}$$

$$\tilde{T}_{0,0;3D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \tag{4.427}$$

Fermions, spin 0 x 0, dimension 4:

$$\begin{aligned}
\tilde{T}_{0,0;4D}^{\text{f,UV}} = & \frac{i}{2\pi^2} \left(\left(\frac{1}{2} - \frac{P}{4} \right) k^2 + \left(-2 + \frac{3P}{2} \right) m^2 - \left(\frac{9}{4} + \frac{3K}{2} \right) \frac{m^4}{k^2} + \left(\frac{1}{6} - K \right) \frac{m^6}{k^4} + \right. \\
& \left. + \left(\frac{7}{8} - \frac{3K}{2} \right) \frac{m^8}{k^6} + \left(\frac{47}{20} - 3K \right) \frac{m^{10}}{k^8} + \left(\frac{379}{60} - 7K \right) \frac{m^{12}}{k^{10}} + \dots \right)
\end{aligned} \tag{4.428}$$

$$\begin{aligned}
\tilde{T}_{0,0;4D}^{\text{f,IR}} = & \frac{i}{4\pi^2} \left((-1 + 3L_0) m^2 - \left(\frac{1}{3} + \frac{L_0}{2} \right) k^2 + \frac{1}{20}\frac{k^4}{m^2} + \frac{1}{280}\frac{k^6}{m^4} + \frac{1}{2520}\frac{k^8}{m^6} + \right. \\
& \left. + \frac{1}{18480}\frac{k^{10}}{m^8} + \frac{1}{120120}\frac{k^{12}}{m^{10}} + \frac{1}{720720}\frac{k^{14}}{m^{12}} + \dots \right)
\end{aligned} \tag{4.429}$$

$$\tilde{T}_{0,0;4D}^{\text{f,UV-IR}} = \frac{i}{\pi^2} \left(\left(\frac{1}{3} - \frac{K}{8} \right) k^2 + \left(-\frac{3}{4} + \frac{3K}{4} \right) m^2 \right) + \dots \tag{4.430}$$

Fermions, spin 0 x 0, dimension 5:

$$\tilde{T}_{0,0;5D}^{\text{f,UV}} = \frac{1}{\pi^2} \left(-\frac{\pi}{64}k^3 + \frac{\pi}{8}km^2 - \frac{\pi}{4}\frac{m^4}{k} + \frac{8i}{15}\frac{m^5}{k^2} + \frac{32i}{105}\frac{m^7}{k^4} + \frac{128i}{315}\frac{m^9}{k^6} + \frac{512i}{693}\frac{m^{11}}{k^8} + \dots \right) \tag{4.431}$$

$$\tilde{T}_{0,0;5D}^{\text{f,IR}} = \frac{i}{3\pi^2} \left(2m^3 - \frac{1}{2}k^2m + \frac{1}{40}\frac{k^4}{m} + \frac{1}{1120}\frac{k^6}{m^3} + \frac{1}{13440}\frac{k^8}{m^5} + \frac{1}{118272}\frac{k^{10}}{m^7} + \dots \right)$$

$$+\frac{1}{878592}\frac{k^{12}}{m^9}+\frac{1}{5857280}\frac{k^{14}}{m^{11}}+\dots) \quad (4.432)$$

$$\tilde{T}_{0,0;5D}^{\text{f,UV-IR}} = \dots (\text{i.e. no overlap}) \quad (4.433)$$

Fermions, spin 0 x 0, dimension 6:

$$\begin{aligned} \tilde{T}_{0,0;6D}^{\text{f,UV}} = & \frac{i}{2\pi^3} \left(\left(\frac{1}{18} - \frac{P}{48} \right) k^4 + \left(-\frac{17}{36} + \frac{5P}{24} \right) k^2 m^2 + \left(1 - \frac{5P}{8} \right) m^4 + \right. \\ & + \left(\frac{55}{72} + \frac{5K}{12} \right) \frac{m^6}{k^2} + \left(\frac{5}{288} + \frac{5K}{24} \right) \frac{m^8}{k^4} + \left(-\frac{23}{240} + \frac{K}{4} \right) \frac{m^{10}}{k^6} + \\ & \left. + \left(-\frac{37}{144} + \frac{5K}{12} \right) \frac{m^{12}}{k^8} + \dots \right) \end{aligned} \quad (4.434)$$

$$\begin{aligned} \tilde{T}_{0,0;6D}^{\text{f,IR}} = & \frac{i}{16\pi^3} \left(\left(\frac{11}{2} - 5L_0 \right) m^4 + \left(-1 + \frac{5L_0}{3} \right) k^2 m^2 - \left(\frac{1}{15} + \frac{L_0}{6} \right) k^4 + \frac{1}{84} \frac{k^6}{m^2} + \right. \\ & + \frac{1}{1512} \frac{k^8}{m^4} + \frac{1}{16632} \frac{k^{10}}{m^6} + \frac{1}{144144} \frac{k^{12}}{m^8} + \frac{1}{1081080} \frac{k^{14}}{m^{10}} + \frac{1}{7351344} \frac{k^{16}}{m^{12}} + \\ & \left. + \dots \right) \end{aligned} \quad (4.435)$$

$$\tilde{T}_{0,0;6D}^{\text{f,UV-IR}} = \frac{i}{16\pi^3} \left(\left(\frac{23}{45} - \frac{K}{6} \right) k^4 + \left(-\frac{25}{9} + \frac{5K}{3} \right) k^2 m^2 + \left(\frac{5}{2} - 5K \right) m^4 \right) + \dots \quad (4.436)$$

Fermions, spin 0 x 2, dimension 3:

$$\begin{aligned} \tilde{T}_{0,2;3D}^{\text{f,t,UV}} = & k^2 \pi_{\nu\nu} \left(-\frac{1}{8} \frac{m}{k} + \frac{i}{\pi} \frac{m^2}{k^2} + \frac{1}{2} \frac{m^3}{k^3} - \frac{4i}{3\pi} \frac{m^4}{k^4} - \frac{16i}{15\pi} \frac{m^6}{k^6} - \frac{64i}{35\pi} \frac{m^8}{k^8} - \frac{256i}{63\pi} \frac{m^{10}}{k^{10}} - \right. \\ & \left. - \frac{1024i}{99\pi} \frac{m^{12}}{k^{12}} + \dots \right) \end{aligned} \quad (4.437)$$

$$\begin{aligned} \tilde{T}_{0,2;3D}^{\text{f,t,IR}} = & k^2 \pi_{\nu\nu} \left(\frac{i}{4\pi} \left(\frac{1}{3} + \frac{1}{60} \frac{k^2}{m^2} + \frac{1}{560} \frac{k^4}{m^4} + \frac{1}{4032} \frac{k^6}{m^6} + \frac{1}{25344} \frac{k^8}{m^8} + \frac{1}{146432} \frac{k^{10}}{m^{10}} + \right. \right. \\ & \left. \left. + \frac{1}{798720} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.438)$$

$$\tilde{T}_{0,2;3D}^{\text{f,UV-IR}} = \dots (\text{i.e. no overlap}) \quad (4.439)$$

Fermions, spin 0 x 2, dimension 4:

$$\begin{aligned} \tilde{T}_{0,2;4D}^{\text{f,t,UV}} = & k^2 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{2}{9} - \frac{P}{12} \right) m + \left(-\frac{1}{2} + \frac{K}{2} \right) \frac{m^3}{k^2} - \left(\frac{3}{4} + \frac{K}{2} \right) \frac{m^5}{k^4} + \right. \right. \\ & \left. \left. + \left(\frac{1}{18} - \frac{K}{3} \right) \frac{m^7}{k^6} + \left(\frac{7}{24} - \frac{K}{2} \right) \frac{m^9}{k^8} + \left(\frac{47}{60} - K \right) \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.440)$$

$$\begin{aligned} \tilde{T}_{0,2;4D}^{\text{f,t,IR}} = k^2 \pi_{\nu\nu} \left(\frac{i}{12\pi^2} \left(-L_0 m + \frac{1}{10} \frac{k^2}{m} + \frac{1}{140} \frac{k^4}{m^3} + \frac{1}{1260} \frac{k^6}{m^5} + \frac{1}{9240} \frac{k^8}{m^7} + \frac{1}{60060} \frac{k^{10}}{m^9} + \right. \right. \\ \left. \left. + \frac{1}{360360} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.441)$$

$$\tilde{T}_{0,2;4D}^{\text{f,UV-IR}} = k^2 \pi_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\frac{2}{3} - \frac{K}{4} \right) m \right) + \dots \quad (4.442)$$

Fermions, spin 0 x 2, dimension 5:

$$\begin{aligned} \tilde{T}_{0,2;5D}^{\text{f,t,UV}} = k^2 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{\pi}{128} k m + \frac{\pi}{16} \frac{m^3}{k} - \frac{i}{3} \frac{m^4}{k^2} - \frac{\pi}{8} \frac{m^5}{k^3} + \frac{4i}{15} \frac{m^6}{k^4} + \frac{16i}{105} \frac{m^8}{k^6} + \right. \right. \\ \left. \left. + \frac{64i}{315} \frac{m^{10}}{k^8} + \frac{256i}{693} \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.443)$$

$$\begin{aligned} \tilde{T}_{0,2;5D}^{\text{f,t,IR}} = k^2 \pi_{\nu\nu} \left(\frac{i}{12\pi^2} \left(-m^2 + \frac{1}{20} k^2 + \frac{1}{560} \frac{k^4}{m^2} + \frac{1}{6720} \frac{k^6}{m^4} + \frac{1}{59136} \frac{k^8}{m^6} + \frac{1}{439296} \frac{k^{10}}{m^8} + \right. \right. \\ \left. \left. + \frac{1}{2928640} \frac{k^{12}}{m^{10}} + \frac{1}{18104320} \frac{k^{14}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.444)$$

$$\tilde{T}_{0,2;5D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.445)$$

Fermions, spin 0 x 2, dimension 6:

$$\begin{aligned} \tilde{T}_{0,2;6D}^{\text{f,t,UV}} = k^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{23}{1800} - \frac{P}{240} \right) k^2 m + \left(-\frac{1}{9} + \frac{P}{24} \right) m^3 + \left(\frac{1}{16} - \frac{K}{8} \right) \frac{m^5}{k^2} + \right. \right. \\ \left. \left. + \left(\frac{11}{72} + \frac{K}{12} \right) \frac{m^7}{k^4} + \left(\frac{1}{288} + \frac{K}{24} \right) \frac{m^9}{k^6} + \left(-\frac{23}{1200} + \frac{K}{20} \right) \frac{m^{11}}{k^8} + \dots \right) \right) \end{aligned} \quad (4.446)$$

$$\begin{aligned} \tilde{T}_{0,2;6D}^{\text{f,t,IR}} = k^2 \pi_{\nu\nu} \left(\frac{i}{24\pi^3} \left((-1 + L_0) m^3 - \frac{L_0}{10} k^2 m + \frac{1}{140} \frac{k^4}{m} + \frac{1}{2520} \frac{k^6}{m^3} + \frac{1}{27720} \frac{k^8}{m^5} + \right. \right. \\ \left. \left. + \frac{1}{240240} \frac{k^{10}}{m^7} + \frac{1}{1801800} \frac{k^{12}}{m^9} + \frac{1}{12252240} \frac{k^{14}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.447)$$

$$\tilde{T}_{0,2;6D}^{\text{f,UV-IR}} = k^2 \pi_{\nu\nu} \left(\frac{i}{24\pi^3} \left(\left(\frac{23}{75} - \frac{K}{10} \right) k^2 m + \left(-\frac{5}{3} + K \right) m^3 \right) \right) + \dots \quad (4.448)$$

Fermions, spin 0 x 4, dimension 3:

$$\begin{aligned} \tilde{T}_{0,4;3D}^{\text{f,t,UV}} = k^4 \pi_{\nu\nu}^2 \left(\frac{3}{32} \frac{m}{k} - \frac{i}{\pi} \frac{m^2}{k^2} - \frac{3}{4} \frac{m^3}{k^3} + \frac{4i}{\pi} \frac{m^4}{k^4} + \frac{3}{2} \frac{m^5}{k^5} - \frac{16i}{5\pi} \frac{m^6}{k^6} - \frac{64i}{35\pi} \frac{m^8}{k^8} - \right. \\ \left. - \frac{256i}{105\pi} \frac{m^{10}}{k^{10}} - \frac{1024i}{231\pi} \frac{m^{12}}{k^{12}} + \dots \right) \end{aligned} \quad (4.449)$$

$$\begin{aligned} \tilde{T}_{0,4;3D}^{\text{f,t,IR}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{4\pi} \left(-\frac{1}{5} - \frac{1}{140} \frac{k^2}{m^2} - \frac{1}{1680} \frac{k^4}{m^4} - \frac{1}{14784} \frac{k^6}{m^6} - \frac{1}{109824} \frac{k^8}{m^8} - \right. \right. \\ \left. \left. - \frac{1}{732160} \frac{k^{10}}{m^{10}} - \frac{1}{4526080} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.450)$$

$$\tilde{T}_{0,4;3D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.451)$$

Fermions, spin 0 x 4, dimension 4:

$$\begin{aligned} \tilde{T}_{0,4;4D}^{\text{f,t,UV}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{23}{150} + \frac{P}{20} \right) m + \left(\frac{5}{6} - \frac{K}{2} \right) \frac{m^3}{k^2} + \left(-\frac{3}{4} + \frac{3K}{2} \right) \frac{m^5}{k^4} - \right. \right. \\ \left. \left. - \left(\frac{11}{6} + K \right) \frac{m^7}{k^6} - \left(\frac{1}{24} + \frac{K}{2} \right) \frac{m^9}{k^8} + \left(\frac{23}{100} - \frac{3K}{5} \right) \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.452)$$

$$\begin{aligned} \tilde{T}_{0,4;4D}^{\text{f,t,IR}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^2} \left(L_0 m - \frac{1}{14} \frac{k^2}{m} - \frac{1}{252} \frac{k^4}{m^3} - \frac{1}{2772} \frac{k^6}{m^5} - \frac{1}{24024} \frac{k^8}{m^7} - \frac{1}{180180} \frac{k^{10}}{m^9} - \right. \right. \\ \left. \left. - \frac{1}{1225224} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.453)$$

$$\tilde{T}_{0,4;4D}^{\text{f,UV-IR}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{10\pi^2} \left(-\frac{23}{15} + \frac{K}{2} \right) m \right) + \dots \quad (4.454)$$

Fermions, spin 0 x 4, dimension 5:

$$\begin{aligned} \tilde{T}_{0,4;5D}^{\text{f,t,UV}} = k^4 \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(\frac{\pi}{256} km - \frac{3\pi}{64} \frac{m^3}{k} + \frac{i}{3} \frac{m^4}{k^2} + \frac{3\pi}{16} \frac{m^5}{k^3} - \frac{4i}{5} \frac{m^6}{k^4} - \frac{\pi}{4} \frac{m^7}{k^5} + \frac{16i}{35} \frac{m^8}{k^6} + \right. \right. \\ \left. \left. + \frac{64i}{315} \frac{m^{10}}{k^8} + \frac{256i}{1155} \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.455)$$

$$\begin{aligned} \tilde{T}_{0,4;5D}^{\text{f,t,IR}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{4\pi^2} \left(\frac{1}{5} m^2 - \frac{1}{140} k^2 - \frac{1}{5040} \frac{k^4}{m^2} - \frac{1}{73920} \frac{k^6}{m^4} - \frac{1}{768768} \frac{k^8}{m^6} - \right. \right. \\ \left. \left. - \frac{1}{6589440} \frac{k^{10}}{m^8} - \frac{1}{49786880} \frac{k^{12}}{m^{10}} - \frac{1}{343982080} \frac{k^{14}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.456)$$

$$\tilde{T}_{0,4;5D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.457)$$

Fermions, spin 0 x 4, dimension 6:

$$\begin{aligned} \tilde{T}_{0,4;6D}^{\text{f,t,UV}} = k^4 \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(-\frac{22}{3675} + \frac{P}{560} \right) k^2 m + \left(\frac{23}{300} - \frac{P}{40} \right) m^3 + \left(-\frac{7}{48} + \frac{K}{8} \right) \frac{m^5}{k^2} + \right. \right. \\ \left. \left. + \left(\frac{1}{24} - \frac{K}{4} \right) \frac{m^7}{k^4} + \left(\frac{25}{96} + \frac{K}{8} \right) \frac{m^9}{k^6} + \left(\frac{17}{1200} + \frac{K}{20} \right) \frac{m^{11}}{k^8} + \dots \right) \right) \end{aligned} \quad (4.458)$$

$$\tilde{T}_{0,4;6D}^{\text{f,t,IR}} = k^4 \pi_{\nu\nu} \left(\frac{i}{40\pi^3} \left((1-L_0) m^3 + \frac{L_0}{14} k^2 m - \frac{1}{252} \frac{k^4}{m} - \frac{1}{5544} \frac{k^6}{m^3} - \frac{1}{72072} \frac{k^8}{m^5} - \frac{1}{720720} \frac{k^{10}}{m^7} - \frac{1}{6126120} \frac{k^{12}}{m^9} - \frac{1}{46558512} \frac{k^{14}}{m^{11}} + \dots \right) \right) \quad (4.459)$$

$$\tilde{T}_{0,4;6D}^{\text{f,UV-IR}} = k^4 \pi_{\nu\nu} \left(\frac{i}{5\pi^3} \left(\left(-\frac{22}{735} + \frac{K}{112} \right) k^2 m + \left(\frac{31}{120} - \frac{K}{8} \right) m^3 \right) \right) + \dots \quad (4.460)$$

Fermions, spin 1 x 1, dimension 3:

$$\begin{aligned} \tilde{T}_{1,1;3D}^{\text{f,t,UV}} &= k^2 \pi_{\mu\nu} \left(\frac{1}{16} \frac{1}{k} + \frac{1}{4} \frac{m^2}{k^3} - \frac{4i}{3\pi} \frac{m^3}{k^4} - \frac{32i}{15\pi} \frac{m^5}{k^6} - \frac{192i}{35\pi} \frac{m^7}{k^8} - \frac{1024i}{63\pi} \frac{m^9}{k^{10}} - \frac{5120i}{99\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\ &+ (k \cdot \epsilon)_{\mu\nu} \left(-\frac{i}{4} \frac{m}{k} - \frac{1}{\pi} \frac{m^2}{k^2} - \frac{4}{3\pi} \frac{m^4}{k^4} - \frac{16}{5\pi} \frac{m^6}{k^6} - \frac{64}{7\pi} \frac{m^8}{k^8} - \frac{256}{9\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{11\pi} \frac{m^{12}}{k^{12}} + \dots \right) \end{aligned} \quad (4.461)$$

$$\begin{aligned} \tilde{T}_{1,1;3D}^{\text{f,t,IR}} &= k^2 \pi_{\mu\nu} \left(\frac{i}{4\pi} \left(-\frac{1}{3} \frac{1}{m} - \frac{1}{30} \frac{k^2}{m^3} - \frac{3}{560} \frac{k^4}{m^5} - \frac{1}{1008} \frac{k^6}{m^7} - \frac{5}{25344} \frac{k^8}{m^9} - \frac{3}{73216} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ &+ (k \cdot \epsilon)_{\mu\nu} \left(\frac{1}{4\pi} \left(-1 - \frac{1}{12} \frac{k^2}{m^2} - \frac{1}{80} \frac{k^4}{m^4} - \frac{1}{448} \frac{k^6}{m^6} - \frac{1}{2304} \frac{k^8}{m^8} - \frac{1}{11264} \frac{k^{10}}{m^{10}} - \frac{1}{53248} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.462)$$

$$\tilde{T}_{1,1;3D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.463)$$

Fermions, spin 1 x 1, dimension 4:

$$\begin{aligned} \tilde{T}_{1,1;4D}^{\text{f,t,UV}} &= k^2 \pi_{\mu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{5}{36} + \frac{P}{12} \right) - \frac{1}{2} \frac{m^2}{k^2} - \left(\frac{1}{4} + \frac{K}{2} \right) \frac{m^4}{k^4} + \left(\frac{4}{9} - \frac{2K}{3} \right) \frac{m^6}{k^6} + \right. \right. \\ &\left. \left. + \left(\frac{11}{8} - \frac{3K}{2} \right) \frac{m^8}{k^8} + \left(\frac{62}{15} - 4K \right) \frac{m^{10}}{k^{10}} + \left(\frac{463}{36} - \frac{35K}{3} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \end{aligned} \quad (4.464)$$

$$\begin{aligned} \tilde{T}_{1,1;4D}^{\text{f,t,IR}} &= k^2 \pi_{\mu\nu} \left(\frac{i}{4\pi^2} \left(\frac{L_0}{3} - \frac{1}{15} \frac{k^2}{m^2} - \frac{1}{140} \frac{k^4}{m^4} - \frac{1}{945} \frac{k^6}{m^6} - \frac{1}{5544} \frac{k^8}{m^8} - \frac{1}{30030} \frac{k^{10}}{m^{10}} - \frac{1}{154440} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.465)$$

$$\tilde{T}_{1,1;4D}^{\text{f,UV-IR}} = k^2 \pi_{\mu\nu} \frac{i}{12\pi^2} \left(-\frac{5}{3} + K \right) + \dots \quad (4.466)$$

Fermions, spin 1 x 1, dimension 5:

$$\begin{aligned} \tilde{T}_{1,1;5D}^{\text{f,t,UV}} = k^2 \pi_{\mu\nu} \left(\frac{1}{\pi^2} \left(\frac{3\pi}{256} k - \frac{\pi}{32} \frac{m^2}{k} - \frac{\pi}{16} \frac{m^4}{k^3} + \frac{4i}{15} \frac{m^5}{k^4} + \frac{32i}{105} \frac{m^7}{k^6} + \frac{64i}{105} \frac{m^9}{k^8} + \right. \right. \\ \left. \left. + \frac{1024i}{693} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.467)$$

$$\begin{aligned} \tilde{T}_{1,1;5D}^{\text{f,t,IR}} = k^2 \pi_{\mu\nu} \left(\frac{i}{4\pi^2} \left(\frac{1}{3} m - \frac{1}{30} \frac{k^2}{m} - \frac{1}{560} \frac{k^4}{m^3} - \frac{1}{5040} \frac{k^6}{m^5} - \frac{5}{177408} \frac{k^8}{m^7} - \frac{1}{219648} \frac{k^{10}}{m^9} - \right. \right. \\ \left. \left. - \frac{7}{8785920} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.468)$$

$$\tilde{T}_{1,1;5D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.469)$$

Fermions, spin 1 x 1, dimension 6:

$$\begin{aligned} \tilde{T}_{1,1;6D}^{\text{f,t,UV}} = k^2 \pi_{\mu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{77}{3600} + \frac{P}{120} \right) k^2 + \left(\frac{5}{72} - \frac{P}{24} \right) m^2 + \frac{1}{8} \frac{m^4}{k^2} + \right. \right. \\ \left. \left. + \left(\frac{5}{72} + \frac{K}{12} \right) \frac{m^6}{k^4} + \left(-\frac{5}{144} + \frac{K}{12} \right) \frac{m^8}{k^6} + \left(-\frac{43}{400} + \frac{3K}{20} \right) \frac{m^{10}}{k^8} + \right. \right. \\ \left. \left. + \left(-\frac{13}{45} + \frac{K}{3} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.470)$$

$$\begin{aligned} \tilde{T}_{1,1;6D}^{\text{f,t,IR}} = k^2 \pi_{\mu\nu} \left(\frac{i}{8\pi^3} \left(\left(\frac{1}{3} - \frac{L_0}{3} \right) m^2 + \frac{L_0}{15} k^2 - \frac{1}{140} \frac{k^4}{m^2} - \frac{1}{1890} \frac{k^6}{m^4} - \frac{1}{16632} \frac{k^8}{m^6} - \right. \right. \\ \left. \left. - \frac{1}{120120} \frac{k^{10}}{m^8} - \frac{1}{772200} \frac{k^{12}}{m^{10}} - \frac{1}{4594590} \frac{k^{14}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.471)$$

$$\tilde{T}_{1,1;6D}^{\text{f,UV-IR}} = k^2 \pi_{\mu\nu} \left(\frac{i}{12\pi^3} \left(\left(-\frac{77}{300} + \frac{K}{10} \right) k^2 + \left(\frac{1}{3} - \frac{K}{2} \right) m^2 \right) \right) + \dots \quad (4.472)$$

Fermions, spin 1 x 3, dimension 3:

$$\begin{aligned} \tilde{T}_{1,3;3D}^{\text{f,t,UV}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} \left(-\frac{1}{64} \frac{1}{k} - \frac{1}{8} \frac{m^2}{k^3} + \frac{4i}{3\pi} \frac{m^3}{k^4} + \frac{3}{4} \frac{m^4}{k^5} - \frac{32i}{15\pi} \frac{m^5}{k^6} - \frac{64i}{35\pi} \frac{m^7}{k^8} - \frac{1024i}{315\pi} \frac{m^9}{k^{10}} - \right. \\ \left. - \frac{5120i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\ + k^2 (k \cdot \epsilon)_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{8} \frac{m}{k} + \frac{1}{\pi} \frac{m^2}{k^2} - \frac{i}{2} \frac{m^3}{k^3} - \frac{4}{3\pi} \frac{m^4}{k^4} - \frac{16}{15\pi} \frac{m^6}{k^6} - \frac{64}{35\pi} \frac{m^8}{k^8} - \right. \\ \left. - \frac{256}{63\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{99\pi} \frac{m^{12}}{k^{12}} + \dots \right) \end{aligned} \quad (4.473)$$

$$\tilde{T}_{1,3;3D}^{\text{f,t,IR}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{4\pi} \left(\frac{1}{15} \frac{1}{m} + \frac{1}{210} \frac{k^2}{m^3} + \frac{1}{1680} \frac{k^4}{m^5} + \frac{1}{11088} \frac{k^6}{m^7} + \frac{5}{329472} \frac{k^8}{m^9} + \right. \right.$$

$$\begin{aligned}
& + \frac{1}{366080} \frac{k^{10}}{m^{11}} + \dots \Big) \Big) + \\
& + k^2 (k \cdot \epsilon)_{\mu\nu} \pi_{\nu\nu} \left(\frac{1}{4\pi} \left(\frac{1}{3} + \frac{1}{60} \frac{k^2}{m^2} + \frac{1}{560} \frac{k^4}{m^4} + \frac{1}{4032} \frac{k^6}{m^6} + \frac{1}{25344} \frac{k^8}{m^8} + \right. \right. \\
& \left. \left. + \frac{1}{146432} \frac{k^{10}}{m^{10}} + \frac{1}{798720} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.474)
\end{aligned}$$

$$\tilde{T}_{1,3;3D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.475)$$

Fermions, spin 1 x 3, dimension 4:

$$\begin{aligned}
\tilde{T}_{1,3;4D}^{\text{f,t,UV}} &= k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{31}{900} - \frac{P}{60} \right) + \frac{1}{6} \frac{m^2}{k^2} + \left(-\frac{3}{4} + \frac{K}{2} \right) \frac{m^4}{k^4} - \left(\frac{8}{9} + \frac{2K}{3} \right) \frac{m^6}{k^6} + \right. \right. \\
& \left. \left. + \left(\frac{1}{8} - \frac{K}{2} \right) \frac{m^8}{k^8} + \left(\frac{38}{75} - \frac{4K}{5} \right) \frac{m^{10}}{k^{10}} + \left(\frac{49}{36} - \frac{5K}{3} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \quad (4.476)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{1,3;4D}^{\text{f,t,IR}} &= k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{12\pi^2} \left(-\frac{L_0}{5} + \frac{1}{35} \frac{k^2}{m^2} + \frac{1}{420} \frac{k^4}{m^4} + \frac{1}{3465} \frac{k^6}{m^6} + \frac{1}{24024} \frac{k^8}{m^8} + \right. \right. \\
& \left. \left. + \frac{1}{150150} \frac{k^{10}}{m^{10}} + \frac{1}{875160} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.477)
\end{aligned}$$

$$\tilde{T}_{1,3;4D}^{\text{f,UV-IR}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} \frac{i}{60\pi^2} \left(\frac{31}{15} - K \right) + \dots \quad (4.478)$$

Fermions, spin 1 x 3, dimension 5:

$$\begin{aligned}
\tilde{T}_{1,3;5D}^{\text{f,t,UV}} &= k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{1}{\pi^2} \left(-\frac{\pi}{512} k + \frac{\pi}{128} \frac{m^2}{k} + \frac{\pi}{32} \frac{m^4}{k^3} - \frac{4i}{15} \frac{m^5}{k^4} - \frac{\pi}{8} \frac{m^6}{k^5} + \frac{32i}{105} \frac{m^7}{k^6} + \right. \right. \\
& \left. \left. + \frac{64i}{315} \frac{m^9}{k^8} + \frac{1024i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.479)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{1,3;5D}^{\text{f,t,IR}} &= k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{12\pi^2} \left(-\frac{1}{5} m + \frac{1}{70} \frac{k^2}{m} + \frac{1}{1680} \frac{k^4}{m^3} + \frac{1}{18480} \frac{k^6}{m^5} + \frac{5}{768768} \frac{k^8}{m^7} + \right. \right. \\
& \left. \left. + \frac{1}{1098240} \frac{k^{10}}{m^9} + \frac{7}{49786880} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.480)
\end{aligned}$$

$$\tilde{T}_{1,3;5D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.481)$$

Fermions, spin 1 x 3, dimension 6:

$$\begin{aligned}
\tilde{T}_{1,3;6D}^{\text{f,t,UV}} &= k^4 \pi_{\nu\nu} \pi_{\mu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{599}{176400} - \frac{P}{840} \right) k^2 + \left(-\frac{31}{1800} + \frac{P}{120} \right) m^2 - \frac{1}{24} \frac{m^4}{k^2} + \right. \right. \\
& \left. \left. + \left(\frac{7}{72} - \frac{K}{12} \right) \frac{m^6}{k^4} + \left(\frac{19}{144} + \frac{K}{12} \right) \frac{m^8}{k^6} + \left(-\frac{1}{400} + \frac{K}{20} \right) \frac{m^{10}}{k^8} + \right. \right.
\end{aligned}$$

$$+ \left(-\frac{7}{225} + \frac{K}{15} \right) \frac{m^{12}}{k^{10}} + \dots \Bigg) \quad (4.482)$$

$$\begin{aligned} \tilde{T}_{1,3;6D}^{\text{f,t,IR}} = k^4 \pi_{\nu\nu} \pi_{\mu\nu} \Bigg(\frac{i}{24\pi^3} \Bigg(\left(-\frac{1}{5} + \frac{L_0}{5} \right) m^2 - \frac{L_0}{35} k^2 + \frac{1}{420} \frac{k^4}{m^2} + \frac{1}{6930} \frac{k^6}{m^4} + \frac{1}{72072} \frac{k^8}{m^6} + \\ + \frac{1}{600600} \frac{k^{10}}{m^8} + \frac{1}{4375800} \frac{k^{12}}{m^{10}} + \frac{1}{29099070} \frac{k^{14}}{m^{12}} + \dots \Bigg) \Bigg) \end{aligned} \quad (4.483)$$

$$\tilde{T}_{1,3;6D}^{\text{f,UV-IR}} = k^4 \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{15\pi^3} \left(\left(\frac{599}{11760} - \frac{K}{56} \right) k^2 + \left(-\frac{2}{15} + \frac{K}{8} \right) m^2 \right) \right) + \dots \quad (4.484)$$

Fermions, spin 1 x 5, dimension 3:

$$\begin{aligned} \tilde{T}_{1,5;3D}^{\text{f,t,UV}} = k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \Bigg(\frac{1}{128} \frac{1}{k} + \frac{3}{32} \frac{m^2}{k^3} - \frac{4i}{3\pi} \frac{m^3}{k^4} - \frac{9}{8} \frac{m^4}{k^5} + \frac{32i}{5\pi} \frac{m^5}{k^6} + \frac{5}{2} \frac{m^6}{k^7} - \frac{192i}{35\pi} \frac{m^7}{k^8} - \\ - \frac{1024i}{315\pi} \frac{m^9}{k^{10}} - \frac{1024i}{231\pi} \frac{m^{11}}{k^{12}} + \dots \Bigg) + \\ + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\nu\nu}^2 \Bigg(-\frac{3i}{32} \frac{m}{k} - \frac{1}{\pi} \frac{m^2}{k^2} + \frac{3i}{4} \frac{m^3}{k^3} + \frac{4}{\pi} \frac{m^4}{k^4} - \frac{3i}{2} \frac{m^5}{k^5} - \frac{16}{5\pi} \frac{m^6}{k^6} - \\ - \frac{64}{35\pi} \frac{m^8}{k^8} - \frac{256}{105\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{231\pi} \frac{m^{12}}{k^{12}} + \dots \Bigg) \end{aligned} \quad (4.485)$$

$$\begin{aligned} \tilde{T}_{1,5;3D}^{\text{f,t,IR}} = k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \Bigg(\frac{i}{4\pi} \left(-\frac{1}{35} \frac{1}{m} - \frac{1}{630} \frac{k^2}{m^3} - \frac{1}{6160} \frac{k^4}{m^5} - \frac{1}{48048} \frac{k^6}{m^7} - \frac{1}{329472} \frac{k^8}{m^9} - \right. \\ \left. - \frac{3}{6223360} \frac{k^{10}}{m^{11}} + \dots \right) \Bigg) + \\ + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\nu\nu}^2 \Bigg(\frac{1}{4\pi} \left(-\frac{1}{5} - \frac{1}{140} \frac{k^2}{m^2} - \frac{1}{1680} \frac{k^4}{m^4} - \frac{1}{14784} \frac{k^6}{m^6} - \frac{1}{109824} \frac{k^8}{m^8} - \right. \\ \left. - \frac{1}{732160} \frac{k^{10}}{m^{10}} - \frac{1}{4526080} \frac{k^{12}}{m^{12}} + \dots \right) \Bigg) \end{aligned} \quad (4.486)$$

$$\tilde{T}_{1,5;3D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.487)$$

Fermions, spin 1 x 5, dimension 4:

$$\begin{aligned} \tilde{T}_{1,5;4D}^{\text{f,t,UV}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \Bigg(\frac{i}{\pi^2} \left(\left(-\frac{247}{14700} + \frac{P}{140} \right) - \frac{1}{10} \frac{m^2}{k^2} + \left(\frac{13}{12} - \frac{K}{2} \right) \frac{m^4}{k^4} + \right. \\ + \left(-\frac{4}{3} + 2K \right) \frac{m^6}{k^6} - \left(\frac{21}{8} + \frac{3K}{2} \right) \frac{m^8}{k^8} - \left(\frac{2}{75} + \frac{4K}{5} \right) \frac{m^{10}}{k^{10}} + \\ \left. + \left(\frac{5}{12} - K \right) \frac{m^{12}}{k^{12}} + \dots \right) \Bigg) \end{aligned} \quad (4.488)$$

$$\tilde{T}_{1,5;4D}^{\text{f,t,IR}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} \Bigg(\frac{i}{20\pi^2} \left(\frac{L_0}{7} - \frac{1}{63} \frac{k^2}{m^2} - \frac{1}{924} \frac{k^4}{m^4} - \frac{1}{9009} \frac{k^6}{m^6} - \frac{1}{72072} \frac{k^8}{m^8} - \right.$$

$$\left. -\frac{1}{510510} \frac{k^{10}}{m^{10}} - \frac{1}{3325608} \frac{k^{12}}{m^{12}} + \dots \right) \quad (4.489)$$

$$\tilde{T}_{1,5;4D}^{\text{f,UV-IR}} = k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \frac{i}{140\pi^2} \left(-\frac{247}{105} + K \right) + \dots \quad (4.490)$$

Fermions, spin 1 x 5, dimension 5:

$$\begin{aligned} \tilde{T}_{1,5;5D}^{\text{f,t,UV}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{1}{\pi^2} \left(\frac{3\pi}{4096} k - \frac{\pi}{256} \frac{m^2}{k} - \frac{3\pi}{128} \frac{m^4}{k^3} + \frac{4i}{15} \frac{m^5}{k^4} + \frac{3\pi}{16} \frac{m^6}{k^5} - \frac{32i}{35} \frac{m^7}{k^6} - \right. \right. \\ & \left. \left. - \frac{5\pi}{16} \frac{m^8}{k^7} + \frac{64i}{105} \frac{m^9}{k^8} + \frac{1024i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.491)$$

$$\begin{aligned} \tilde{T}_{1,5;5D}^{\text{f,t,IR}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{4\pi^2} \left(\frac{1}{35} m - \frac{1}{630} \frac{k^2}{m} - \frac{1}{18480} \frac{k^4}{m^3} - \frac{1}{240240} \frac{k^6}{m^5} - \frac{1}{2306304} \frac{k^8}{m^7} - \right. \right. \\ & \left. \left. - \frac{1}{18670080} \frac{k^{10}}{m^9} - \frac{7}{945950720} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.492)$$

$$\tilde{T}_{1,5;5D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.493)$$

Fermions, spin 1 x 5, dimension 6:

$$\begin{aligned} \tilde{T}_{1,5;6D}^{\text{f,t,UV}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{\pi^3} \left(\left(-\frac{1937}{1587600} + \frac{P}{2520} \right) k^2 + \left(\frac{247}{29400} - \frac{P}{280} \right) m^2 + \frac{1}{40} \frac{m^4}{k^2} + \right. \right. \\ & + \left(-\frac{11}{72} + \frac{K}{12} \right) \frac{m^6}{k^4} + \left(\frac{5}{48} - \frac{K}{4} \right) \frac{m^8}{k^6} + \left(\frac{117}{400} + \frac{3K}{20} \right) \frac{m^{10}}{k^8} + \\ & \left. \left. + \left(\frac{1}{75} + \frac{K}{15} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.494)$$

$$\begin{aligned} \tilde{T}_{1,5;6D}^{\text{f,t,IR}} = k^6 \pi_{\nu\nu}^2 \pi_{\mu\nu} & \left(\frac{i}{40\pi^3} \left(\left(\frac{1}{7} - \frac{L_0}{7} \right) m^2 + \frac{L_0}{63} k^2 - \frac{1}{924} \frac{k^4}{m^2} - \frac{1}{18018} \frac{k^6}{m^4} - \right. \right. \\ & - \frac{1}{216216} \frac{k^8}{m^6} - \frac{1}{2042040} \frac{k^{10}}{m^8} - \frac{1}{16628040} \frac{k^{12}}{m^{10}} - \frac{1}{122216094} \frac{k^{14}}{m^{12}} + \\ & \left. \left. + \dots \right) \right) \end{aligned} \quad (4.495)$$

$$\tilde{T}_{1,5;6D}^{\text{f,UV-IR}} = k^6 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{140\pi^3} \left(\left(-\frac{1937}{11340} + \frac{K}{18} \right) k^2 + \left(\frac{71}{105} - \frac{K}{2} \right) m^2 \right) \right) + \dots \quad (4.496)$$

Fermions, spin 2 x 2, dimension 3:

$$\begin{aligned} \tilde{T}_{2,2;3D}^{\text{f,t,UV}} = k^4 \pi_{\mu\nu}^2 & \left(-\frac{1}{32} \frac{1}{k} + \frac{2i}{3\pi} \frac{m^3}{k^4} + \frac{1}{2} \frac{m^4}{k^5} - \frac{8i}{5\pi} \frac{m^5}{k^6} - \frac{32i}{21\pi} \frac{m^7}{k^8} - \frac{128i}{45\pi} \frac{m^9}{k^{10}} - \frac{512i}{77\pi} \frac{m^{11}}{k^{12}} + \right. \\ & \left. + \dots \right) + \end{aligned}$$

$$\begin{aligned}
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{1}{64} \frac{1}{k} - \frac{1}{8} \frac{m^2}{k^3} + \frac{2i}{3\pi} \frac{m^3}{k^4} + \frac{1}{4} \frac{m^4}{k^5} - \frac{8i}{15\pi} \frac{m^5}{k^6} - \frac{32i}{105\pi} \frac{m^7}{k^8} - \right. \\
& \quad \left. - \frac{128i}{315\pi} \frac{m^9}{k^{10}} - \frac{512i}{693\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^2 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu} \left(\frac{i}{8} \frac{m}{k} + \frac{1}{\pi} \frac{m^2}{k^2} - \frac{i}{2} \frac{m^3}{k^3} - \frac{4}{3\pi} \frac{m^4}{k^4} - \frac{16}{15\pi} \frac{m^6}{k^6} - \frac{64}{35\pi} \frac{m^8}{k^8} - \right. \\
& \quad \left. - \frac{256}{63\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{99\pi} \frac{m^{12}}{k^{12}} + \dots \right) \tag{4.497}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;3D}^{\text{f,t,IR}} &= k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi} \left(-\frac{1}{3} \frac{m}{k^2} + \frac{1}{20} \frac{1}{m} + \frac{1}{336} \frac{k^2}{m^3} + \frac{1}{2880} \frac{k^4}{m^5} + \frac{1}{19712} \frac{k^6}{m^7} + \frac{1}{119808} \frac{k^8}{m^9} + \right. \right. \\
& \quad \left. \left. + \frac{1}{675840} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{6\pi} \left(\frac{m}{k^2} - \frac{1}{20} \frac{1}{m} - \frac{1}{560} \frac{k^2}{m^3} - \frac{1}{6720} \frac{k^4}{m^5} - \frac{1}{59136} \frac{k^6}{m^7} - \right. \right. \\
& \quad \left. \left. - \frac{1}{439296} \frac{k^8}{m^9} - \frac{1}{2928640} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^2 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu} \left(\frac{1}{4\pi} \left(\frac{1}{3} + \frac{1}{60} \frac{k^2}{m^2} + \frac{1}{560} \frac{k^4}{m^4} + \frac{1}{4032} \frac{k^6}{m^6} + \frac{1}{25344} \frac{k^8}{m^8} + \right. \right. \\
& \quad \left. \left. + \frac{1}{146432} \frac{k^{10}}{m^{10}} + \frac{1}{798720} \frac{k^{12}}{m^{12}} + \dots \right) \right) \tag{4.498}
\end{aligned}$$

$$\tilde{T}_{2,2;3D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \tag{4.499}$$

Fermions, spin 2 x 2, dimension 4:

$$\begin{aligned}
\tilde{T}_{2,2;4D}^{\text{f,t,UV}} &= k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\left(\frac{3}{25} - \frac{P}{20} \right) + \left(-\frac{1}{9} + \frac{P}{6} \right) \frac{m^2}{k^2} + \left(-\frac{5}{4} + \frac{K}{2} \right) \frac{m^4}{k^4} - \right. \right. \\
& \quad \left. \left. - \left(\frac{7}{6} + K \right) \frac{m^6}{k^6} + \left(\frac{19}{72} - \frac{5K}{6} \right) \frac{m^8}{k^8} + \left(\frac{281}{300} - \frac{7K}{5} \right) \frac{m^{10}}{k^{10}} + \right. \right. \\
& \quad \left. \left. + \left(\frac{151}{60} - 3K \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\
& + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{23}{900} + \frac{P}{120} \right) + \left(\frac{2}{9} - \frac{P}{12} \right) \frac{m^2}{k^2} + \left(-\frac{1}{8} + \frac{K}{4} \right) \frac{m^4}{k^4} - \right. \right. \\
& \quad \left. \left. - \left(\frac{11}{36} + \frac{K}{6} \right) \frac{m^6}{k^6} - \left(\frac{1}{144} + \frac{K}{12} \right) \frac{m^8}{k^8} + \left(\frac{23}{600} - \frac{K}{10} \right) \frac{m^{10}}{k^{10}} + \right. \right. \\
& \quad \left. \left. + \left(\frac{37}{360} - \frac{K}{6} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \tag{4.500}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,2;4D}^{\text{f,t,IR}} &= k^4 \pi_{\mu\nu}^2 \left(\frac{i}{4\pi^2} \left(\left(-\frac{1}{3} + \frac{L_0}{3} \right) \frac{m^2}{k^2} - \frac{L_0}{10} + \frac{1}{84} \frac{k^2}{m^2} + \frac{1}{1080} \frac{k^4}{m^4} + \frac{1}{9240} \frac{k^6}{m^6} + \right. \right. \\
& \quad \left. \left. + \frac{1}{65520} \frac{k^8}{m^8} + \frac{1}{415800} \frac{k^{10}}{m^{10}} + \frac{1}{2450448} \frac{k^{12}}{m^{12}} + \dots \right) \right) +
\end{aligned}$$

$$+ k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{12\pi^2} \left((1 - L_0) \frac{m^2}{k^2} + \frac{L_0}{10} - \frac{1}{140} \frac{k^2}{m^2} - \frac{1}{2520} \frac{k^4}{m^4} - \frac{1}{27720} \frac{k^6}{m^6} - \frac{1}{240240} \frac{k^8}{m^8} - \frac{1}{1801800} \frac{k^{10}}{m^{10}} - \frac{1}{12252240} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.501)$$

$$\tilde{T}_{2,2;4D}^{\text{f,UV-IR}} = k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\left(\frac{3}{25} - \frac{K}{20} \right) + \left(\frac{1}{18} + \frac{K}{6} \right) \frac{m^2}{k^2} \right) \right) + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{12\pi^2} \left(\left(-\frac{23}{75} + \frac{K}{10} \right) + \left(\frac{5}{3} - K \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.502)$$

Fermions, spin 2 x 2, dimension 5:

$$\tilde{T}_{2,2;5D}^{\text{f,t,UV}} = k^4 \pi_{\mu\nu}^2 \left(\frac{1}{\pi^2} \left(-\frac{\pi}{384} k + \frac{\pi}{64} \frac{m^2}{k} - \frac{2i}{15} \frac{m^5}{k^4} - \frac{\pi}{12} \frac{m^6}{k^5} + \frac{8i}{35} \frac{m^7}{k^6} + \frac{32i}{189} \frac{m^9}{k^8} + \frac{128i}{495} \frac{m^{11}}{k^{10}} + \dots \right) \right) + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{\pi}{1536} k - \frac{\pi}{128} \frac{m^2}{k} + \frac{\pi}{32} \frac{m^4}{k^3} - \frac{2i}{15} \frac{m^5}{k^4} - \frac{\pi}{24} \frac{m^6}{k^5} + \frac{8i}{105} \frac{m^7}{k^6} + \frac{32i}{945} \frac{m^9}{k^8} + \frac{128i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.503)$$

$$\tilde{T}_{2,2;5D}^{\text{f,t,IR}} = k^4 \pi_{\mu\nu}^2 \left(\frac{i}{2\pi^2} \left(\frac{1}{9} \frac{m^3}{k^2} - \frac{1}{20} m + \frac{1}{336} \frac{k^2}{m} + \frac{1}{8640} \frac{k^4}{m^3} + \frac{1}{98560} \frac{k^6}{m^5} + \frac{1}{838656} \frac{k^8}{m^7} + \frac{1}{6082560} \frac{k^{10}}{m^9} + \frac{1}{39829504} \frac{k^{12}}{m^{11}} + \dots \right) \right) + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{6\pi^2} \left(-\frac{1}{3} \frac{m^3}{k^2} + \frac{1}{20} m - \frac{1}{560} \frac{k^2}{m} - \frac{1}{20160} \frac{k^4}{m^3} - \frac{1}{295680} \frac{k^6}{m^5} - \frac{1}{3075072} \frac{k^8}{m^7} - \frac{1}{26357760} \frac{k^{10}}{m^9} - \frac{1}{199147520} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.504)$$

$$\tilde{T}_{2,2;5D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.505)$$

Fermions, spin 2 x 2, dimension 6:

$$\tilde{T}_{2,2;6D}^{\text{f,t,UV}} = k^4 \pi_{\mu\nu}^2 \left(\frac{i}{4\pi^3} \left(\left(\frac{31}{1764} - \frac{P}{168} \right) k^2 + \left(-\frac{3}{25} + \frac{P}{20} \right) m^2 + \left(\frac{1}{18} - \frac{P}{12} \right) \frac{m^4}{k^2} + \left(\frac{13}{36} - \frac{K}{6} \right) \frac{m^6}{k^4} + \left(\frac{17}{48} + \frac{K}{4} \right) \frac{m^8}{k^6} + \left(-\frac{7}{360} + \frac{K}{6} \right) \frac{m^{10}}{k^8} + \left(-\frac{211}{1800} + \frac{7K}{30} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{3\pi^3} \left(\left(-\frac{11}{3675} + \frac{P}{1120} \right) k^2 + \left(\frac{23}{600} - \frac{P}{80} \right) m^2 + \left(-\frac{1}{6} + \frac{P}{16} \right) \frac{m^4}{k^2} + \left(\frac{1}{48} - \frac{K}{8} \right) \frac{m^6}{k^4} + \left(\frac{25}{192} + \frac{K}{16} \right) \frac{m^8}{k^6} + \dots \right) \right)$$

$$+ \left(\frac{17}{2400} + \frac{K}{40} \right) \frac{m^{10}}{k^8} + \left(-\frac{13}{2400} + \frac{K}{40} \right) \frac{m^{12}}{k^{10}} + \dots \right) \quad (4.506)$$

$$\begin{aligned} \tilde{T}_{2,2;6D}^{\text{f,t,IR}} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{16\pi^3} \left(\left(\frac{1}{2} - \frac{L_0}{3} \right) \frac{m^4}{k^2} + \left(-\frac{1}{5} + \frac{L_0}{5} \right) m^2 - \frac{L_0}{42} k^2 + \frac{1}{540} \frac{k^4}{m^2} + \right. \right. \\ & + \frac{1}{9240} \frac{k^6}{m^4} + \frac{1}{98280} \frac{k^8}{m^6} + \frac{1}{831600} \frac{k^{10}}{m^8} + \frac{1}{6126120} \frac{k^{12}}{m^{10}} + \frac{1}{41081040} \frac{k^{14}}{m^{12}} + \\ & \left. \left. + \dots \right) \right) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{16\pi^3} \left(\left(-\frac{1}{2} + \frac{L_0}{3} \right) \frac{m^4}{k^2} + \left(\frac{1}{15} - \frac{L_0}{15} \right) m^2 + \frac{L_0}{210} k^2 - \right. \right. \\ & - \frac{1}{3780} \frac{k^4}{m^2} - \frac{1}{83160} \frac{k^6}{m^4} - \frac{1}{1081080} \frac{k^8}{m^6} - \frac{1}{10810800} \frac{k^{10}}{m^8} - \\ & \left. \left. - \frac{1}{91891800} \frac{k^{12}}{m^{10}} - \frac{1}{698377680} \frac{k^{14}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.507)$$

$$\begin{aligned} \tilde{T}_{2,2;6D}^{\text{f,t,UV-IR}} = & k^4 \pi_{\mu\nu}^2 \left(\frac{i}{16\pi^3} \left(\left(\frac{31}{441} - \frac{K}{42} \right) k^2 + \left(-\frac{7}{25} + \frac{K}{5} \right) m^2 - \left(\frac{5}{18} + \frac{K}{3} \right) \frac{m^4}{k^2} \right) \right) + \\ & + k^4 \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{i}{3\pi^3} \left(\left(-\frac{11}{3675} + \frac{K}{1120} \right) k^2 + \left(\frac{31}{1200} - \frac{K}{80} \right) m^2 + \right. \right. \\ & \left. \left. + \left(-\frac{7}{96} + \frac{K}{16} \right) \frac{m^4}{k^2} \right) \right) + \dots \end{aligned} \quad (4.508)$$

Fermions, spin 2 x 4, dimension 3:

$$\begin{aligned} \tilde{T}_{2,4;3D}^{\text{f,t,UV}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{64} \frac{1}{k} - \frac{2i}{3\pi} \frac{m^3}{k^4} - \frac{3}{4} \frac{m^4}{k^5} + \frac{24i}{5\pi} \frac{m^5}{k^6} + 2 \frac{m^6}{k^7} - \frac{32i}{7\pi} \frac{m^7}{k^8} - \frac{128i}{45\pi} \frac{m^9}{k^{10}} - \right. \\ & \left. - \frac{1536i}{385\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(-\frac{1}{128} \frac{1}{k} + \frac{3}{32} \frac{m^2}{k^3} - \frac{2i}{3\pi} \frac{m^3}{k^4} - \frac{3}{8} \frac{m^4}{k^5} + \frac{8i}{5\pi} \frac{m^5}{k^6} + \frac{1}{2} \frac{m^6}{k^7} - \right. \\ & \left. - \frac{32i}{35\pi} \frac{m^7}{k^8} - \frac{128i}{315\pi} \frac{m^9}{k^{10}} - \frac{512i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\ & + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu} \pi_{\nu\nu} \left(-\frac{3i}{32} \frac{m}{k} - \frac{1}{\pi} \frac{m^2}{k^2} + \frac{3i}{4} \frac{m^3}{k^3} + \frac{4}{\pi} \frac{m^4}{k^4} - \frac{3i}{2} \frac{m^5}{k^5} - \frac{16}{5\pi} \frac{m^6}{k^6} - \right. \\ & \left. - \frac{64}{35\pi} \frac{m^8}{k^8} - \frac{256}{105\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{231\pi} \frac{m^{12}}{k^{12}} + \dots \right) \end{aligned} \quad (4.509)$$

$$\begin{aligned} \tilde{T}_{2,4;3D}^{\text{f,t,IR}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{2\pi} \left(\frac{1}{5} \frac{m}{k^2} - \frac{3}{140} \frac{1}{m} - \frac{1}{1008} \frac{k^2}{m^3} - \frac{1}{10560} \frac{k^4}{m^5} - \frac{3}{256256} \frac{k^6}{m^7} - \right. \right. \\ & \left. \left. - \frac{1}{599040} \frac{k^8}{m^9} - \frac{1}{3829760} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{2\pi} \left(-\frac{1}{5} \frac{m}{k^2} + \frac{1}{140} \frac{1}{m} + \frac{1}{5040} \frac{k^2}{m^3} + \frac{1}{73920} \frac{k^4}{m^5} + \frac{1}{768768} \frac{k^6}{m^7} + \right. \right. \end{aligned}$$

$$\begin{aligned}
& + \frac{1}{6589440} \frac{k^8}{m^9} + \frac{1}{49786880} \frac{k^{10}}{m^{11}} + \dots \Big) \Big) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{1}{4\pi} \left(-\frac{1}{5} - \frac{1}{140} \frac{k^2}{m^2} - \frac{1}{1680} \frac{k^4}{m^4} - \frac{1}{14784} \frac{k^6}{m^6} - \right. \right. \\
& \left. \left. - \frac{1}{109824} \frac{k^8}{m^8} - \frac{1}{732160} \frac{k^{10}}{m^{10}} - \frac{1}{4526080} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.510)
\end{aligned}$$

$$\tilde{T}_{2,4;3D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.511)$$

Fermions, spin 2 x 4, dimension 4:

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{\text{f,t,UV}} &= k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{141}{4900} + \frac{3P}{280} \right) + \left(\frac{4}{75} - \frac{P}{20} \right) \frac{m^2}{k^2} + \left(\frac{19}{24} - \frac{K}{4} \right) \frac{m^4}{k^4} + \right. \right. \\
& + \left(-\frac{5}{4} + \frac{3K}{2} \right) \frac{m^6}{k^6} - \left(\frac{101}{48} + \frac{5K}{4} \right) \frac{m^8}{k^8} + \left(\frac{1}{600} - \frac{7K}{10} \right) \frac{m^{10}}{k^{10}} + \\
& \left. + \left(\frac{79}{200} - \frac{9K}{10} \right) \frac{m^{12}}{k^{12}} + \dots \right) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{44}{3675} - \frac{P}{280} \right) + \left(-\frac{23}{150} + \frac{P}{20} \right) \frac{m^2}{k^2} + \left(\frac{7}{24} - \frac{K}{4} \right) \frac{m^4}{k^4} + \right. \right. \\
& + \left(-\frac{1}{12} + \frac{K}{2} \right) \frac{m^6}{k^6} - \left(\frac{25}{48} + \frac{K}{4} \right) \frac{m^8}{k^8} - \left(\frac{17}{600} + \frac{K}{10} \right) \frac{m^{10}}{k^{10}} + \\
& \left. + \left(\frac{13}{600} - \frac{K}{10} \right) \frac{m^{12}}{k^{12}} + \dots \right) \Big) \quad (4.512)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{\text{f,t,IR}} &= k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{4\pi^2} \left(\left(\frac{1}{5} - \frac{L_0}{5} \right) \frac{m^2}{k^2} + \frac{3L_0}{70} - \frac{1}{252} \frac{k^2}{m^2} - \frac{1}{3960} \frac{k^4}{m^4} - \frac{1}{40040} \frac{k^6}{m^6} - \right. \right. \\
& \left. \left. - \frac{1}{327600} \frac{k^8}{m^8} - \frac{1}{2356200} \frac{k^{10}}{m^{10}} - \frac{1}{15519504} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^2} \left((-1 + L_0) \frac{m^2}{k^2} - \frac{L_0}{14} + \frac{1}{252} \frac{k^2}{m^2} + \frac{1}{5544} \frac{k^4}{m^4} + \frac{1}{72072} \frac{k^6}{m^6} + \right. \right. \\
& \left. \left. + \frac{1}{720720} \frac{k^8}{m^8} + \frac{1}{6126120} \frac{k^{10}}{m^{10}} + \frac{1}{46558512} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.513)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{\text{f,UV-IR}} &= k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{20\pi^2} \left(\left(-\frac{141}{245} + \frac{3K}{14} \right) + \left(\frac{1}{15} - K \right) \frac{m^2}{k^2} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(\frac{44}{735} - \frac{K}{56} \right) + \left(-\frac{31}{60} + \frac{K}{4} \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.514)
\end{aligned}$$

Fermions, spin 2 x 4, dimension 5:

$$\begin{aligned}
\tilde{T}_{2,4;5D}^{\text{f,t,UV}} &= k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{\pi}{1024} k - \frac{\pi}{128} \frac{m^2}{k} + \frac{2i}{15} \frac{m^5}{k^4} + \frac{\pi}{8} \frac{m^6}{k^5} - \frac{24i}{35} \frac{m^7}{k^6} - \frac{\pi}{4} \frac{m^8}{k^7} + \right. \right. \\
& \left. \left. + \frac{32i}{63} \frac{m^9}{k^8} + \frac{128i}{495} \frac{m^{11}}{k^{10}} + \dots \right) \right) +
\end{aligned}$$

$$+ k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(-\frac{\pi}{4096} k + \frac{\pi}{256} \frac{m^2}{k} - \frac{3\pi}{128} \frac{m^4}{k^3} + \frac{2i}{15} \frac{m^5}{k^4} + \frac{\pi}{16} \frac{m^6}{k^5} - \frac{8i}{35} \frac{m^7}{k^6} - \frac{\pi}{16} \frac{m^8}{k^7} + \frac{32i}{315} \frac{m^9}{k^8} + \frac{128i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \quad (4.515)$$

$$\begin{aligned} \tilde{T}_{2,4;5D}^{\text{f,t,IR}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{2\pi^2} \left(-\frac{1}{15} \frac{m^3}{k^2} + \frac{3}{140} m - \frac{1}{1008} \frac{k^2}{m} - \frac{1}{31680} \frac{k^4}{m^3} - \frac{3}{1281280} \frac{k^6}{m^5} - \frac{1}{4193280} \frac{k^8}{m^7} - \frac{1}{34467840} \frac{k^{10}}{m^9} - \frac{3}{756760576} \frac{k^{12}}{m^{11}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{10\pi^2} \left(\frac{1}{3} \frac{m^3}{k^2} - \frac{1}{28} m + \frac{1}{1008} \frac{k^2}{m} + \frac{1}{44352} \frac{k^4}{m^3} + \frac{1}{768768} \frac{k^6}{m^5} + \frac{1}{9225216} \frac{k^8}{m^7} + \frac{1}{89616384} \frac{k^{10}}{m^9} + \frac{1}{756760576} \frac{k^{12}}{m^{11}} + \dots \right) \right) \end{aligned} \quad (4.516)$$

$$\tilde{T}_{2,4;5D}^{\text{f,UV-IR}} = \dots \text{ (i.e. no overlap)} \quad (4.517)$$

Fermions, spin 2 x 4, dimension 6:

$$\begin{aligned} \tilde{T}_{2,4;6D}^{\text{f,t,UV}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{25}{15876} + \frac{P}{2016} \right) k^2 + \left(\frac{141}{9800} - \frac{3P}{560} \right) m^2 + \left(-\frac{1}{75} + \frac{P}{80} \right) \frac{m^4}{k^2} + \left(-\frac{17}{144} + \frac{K}{24} \right) \frac{m^6}{k^4} + \left(\frac{7}{64} - \frac{3K}{16} \right) \frac{m^8}{k^6} + \left(\frac{113}{480} + \frac{K}{8} \right) \frac{m^{10}}{k^8} + \left(\frac{23}{2400} + \frac{7K}{120} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(\frac{563}{1587600} - \frac{P}{10080} \right) k^2 + \left(-\frac{22}{3675} + \frac{P}{560} \right) m^2 + \left(\frac{23}{600} - \frac{P}{80} \right) \frac{m^4}{k^2} + \left(-\frac{5}{144} + \frac{K}{24} \right) \frac{m^6}{k^4} - \left(\frac{1}{192} + \frac{K}{16} \right) \frac{m^8}{k^6} + \left(\frac{137}{2400} + \frac{K}{40} \right) \frac{m^{10}}{k^8} + \left(\frac{3}{800} + \frac{K}{120} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.518)$$

$$\begin{aligned} \tilde{T}_{2,4;6D}^{\text{f,t,IR}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{16\pi^3} \left(\left(-\frac{3}{10} + \frac{L_0}{5} \right) \frac{m^4}{k^2} + \left(\frac{3}{35} - \frac{3L_0}{35} \right) m^2 + \frac{L_0}{126} k^2 - \frac{1}{1980} \frac{k^4}{m^2} - \frac{1}{40040} \frac{k^6}{m^4} - \frac{1}{491400} \frac{k^8}{m^6} - \frac{1}{4712400} \frac{k^{10}}{m^8} - \frac{1}{38798760} \frac{k^{12}}{m^{10}} - \frac{1}{287567280} \frac{k^{14}}{m^{12}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{80\pi^3} \left(\left(\frac{3}{2} - L_0 \right) \frac{m^4}{k^2} + \left(-\frac{1}{7} + \frac{L_0}{7} \right) m^2 - \frac{L_0}{126} k^2 + \frac{1}{2772} \frac{k^4}{m^2} + \frac{1}{72072} \frac{k^6}{m^4} + \frac{1}{1081080} \frac{k^8}{m^6} + \frac{1}{12252240} \frac{k^{10}}{m^8} + \frac{1}{116396280} \frac{k^{12}}{m^{10}} + \frac{1}{977728752} \frac{k^{14}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.519)$$

$$\begin{aligned}
\tilde{T}_{2,4;6D}^{\text{f,UV-IR}} = & k^6 \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{4\pi^3} \left(\left(-\frac{25}{3969} + \frac{K}{504} \right) k^2 + \left(\frac{177}{4900} - \frac{3K}{140} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{13}{600} + \frac{K}{20} \right) \frac{m^4}{k^2} \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{80\pi^3} \left(\left(\frac{563}{19845} - \frac{K}{126} \right) k^2 + \left(-\frac{247}{735} + \frac{K}{7} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{47}{30} - K \right) \frac{m^4}{k^2} \right) \right) + \dots
\end{aligned} \tag{4.520}$$

Fermions, spin 3 x 3, dimension 3:

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{\text{f,t,UV}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{1}{64} \frac{1}{k} - \frac{1}{16} \frac{m^2}{k^3} - \frac{1}{4} \frac{m^4}{k^5} + \frac{32i}{15\pi} \frac{m^5}{k^6} + \frac{m^6}{k^7} - \frac{256i}{105\pi} \frac{m^7}{k^8} - \frac{512i}{315\pi} \frac{m^9}{k^{10}} - \right. \\
& \left. - \frac{8192i}{3465\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(-\frac{1}{128} \frac{1}{k} + \frac{5}{32} \frac{m^2}{k^3} - \frac{4i}{3\pi} \frac{m^3}{k^4} - \frac{7}{8} \frac{m^4}{k^5} + \frac{64i}{15\pi} \frac{m^5}{k^6} + \frac{3}{2} \frac{m^6}{k^7} - \right. \\
& \left. - \frac{64i}{21\pi} \frac{m^7}{k^8} - \frac{512i}{315\pi} \frac{m^9}{k^{10}} - \frac{1024i}{495\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \left(-\frac{i}{16} \frac{m}{k} - \frac{1}{\pi} \frac{m^2}{k^2} + \frac{i}{2} \frac{m^3}{k^3} + \frac{8}{3\pi} \frac{m^4}{k^4} - i \frac{m^5}{k^5} - \frac{32}{15\pi} \frac{m^6}{k^6} - \right. \\
& \left. - \frac{128}{105\pi} \frac{m^8}{k^8} - \frac{512}{315\pi} \frac{m^{10}}{k^{10}} - \frac{2048}{693\pi} \frac{m^{12}}{k^{12}} + \dots \right) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu} \left(-\frac{i}{32} \frac{m}{k} + \frac{i}{4} \frac{m^3}{k^3} + \frac{4}{3\pi} \frac{m^4}{k^4} - \frac{i}{2} \frac{m^5}{k^5} - \frac{16}{15\pi} \frac{m^6}{k^6} - \right. \\
& \left. - \frac{64}{105\pi} \frac{m^8}{k^8} - \frac{256}{315\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{693\pi} \frac{m^{12}}{k^{12}} + \dots \right)
\end{aligned} \tag{4.521}$$

$$\begin{aligned}
\tilde{T}_{3,3;3D}^{\text{f,t,IR}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{3\pi} \left(\frac{2}{5} \frac{m}{k^2} - \frac{1}{35} \frac{1}{m} - \frac{1}{840} \frac{k^2}{m^3} - \frac{1}{9240} \frac{k^4}{m^5} - \frac{5}{384384} \frac{k^6}{m^7} - \frac{1}{549120} \frac{k^8}{m^9} - \right. \right. \\
& \left. \left. - \frac{7}{24893440} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{3\pi} \left(-\frac{2}{5} \frac{m}{k^2} + \frac{1}{140} \frac{1}{m} - \frac{1}{73920} \frac{k^4}{m^5} - \frac{1}{384384} \frac{k^6}{m^7} - \right. \right. \\
& \left. \left. - \frac{1}{2196480} \frac{k^8}{m^9} - \frac{1}{12446720} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \left(\frac{1}{3\pi} \left(-\frac{m^2}{k^2} - \frac{1}{10} - \frac{1}{280} \frac{k^2}{m^2} - \frac{1}{3360} \frac{k^4}{m^4} - \frac{1}{29568} \frac{k^6}{m^6} - \right. \right. \\
& \left. \left. - \frac{1}{219648} \frac{k^8}{m^8} - \frac{1}{1464320} \frac{k^{10}}{m^{10}} - \frac{1}{9052160} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu} \left(\frac{1}{3\pi} \left(\frac{m^2}{k^2} - \frac{1}{20} - \frac{1}{560} \frac{k^2}{m^2} - \frac{1}{6720} \frac{k^4}{m^4} - \frac{1}{59136} \frac{k^6}{m^6} - \right. \right. \\
& \left. \left. - \frac{1}{439296} \frac{k^8}{m^8} - \frac{1}{2928640} \frac{k^{10}}{m^{10}} - \frac{1}{18104320} \frac{k^{12}}{m^{12}} + \dots \right) \right)
\end{aligned} \tag{4.522}$$

$$\tilde{T}_{3,3;3D}^{\text{f,UV-IR}} = k^4 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \left(-\frac{2}{3\pi} \frac{m^2}{k^2} \right) + \dots \quad (4.523)$$

Fermions, spin 3 x 3, dimension 4:

$$\begin{aligned} \tilde{T}_{3,3;4D}^{\text{f,t,UV}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{\pi^2} \left(\left(-\frac{599}{22050} + \frac{P}{105} \right) + \left(\frac{31}{225} - \frac{P}{15} \right) \frac{m^2}{k^2} + \frac{1}{3} \frac{m^4}{k^4} + \right. \right. \\ & + \left(-\frac{7}{9} + \frac{2K}{3} \right) \frac{m^6}{k^6} - \left(\frac{19}{18} + \frac{2K}{3} \right) \frac{m^8}{k^8} + \left(\frac{1}{50} - \frac{2K}{5} \right) \frac{m^{10}}{k^{10}} + \\ & \left. \left. + \left(\frac{56}{225} - \frac{8K}{15} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{457}{44100} - \frac{P}{420} \right) + \left(-\frac{107}{450} + \frac{P}{15} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(\frac{3}{4} - \frac{K}{2} \right) \frac{m^4}{k^4} + \left(-\frac{5}{9} + \frac{4K}{3} \right) \frac{m^6}{k^6} - \left(\frac{113}{72} + \frac{5K}{6} \right) \frac{m^8}{k^8} - \\ & \left. \left. - \left(\frac{7}{150} + \frac{2K}{5} \right) \frac{m^{10}}{k^{10}} + \left(\frac{151}{900} - \frac{7K}{15} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \end{aligned} \quad (4.524)$$

$$\begin{aligned} \tilde{T}_{3,3;4D}^{\text{f,t,IR}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{3\pi^2} \left(\left(\frac{1}{5} - \frac{L_0}{5} \right) \frac{m^2}{k^2} + \frac{L_0}{35} - \frac{1}{420} \frac{k^2}{m^2} - \frac{1}{6930} \frac{k^4}{m^4} - \frac{1}{72072} \frac{k^6}{m^6} - \right. \right. \\ & \left. \left. - \frac{1}{600600} \frac{k^8}{m^8} - \frac{1}{4375800} \frac{k^{10}}{m^{10}} - \frac{1}{29099070} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\left(-\frac{1}{5} + \frac{L_0}{5} \right) \frac{m^2}{k^2} - \frac{L_0}{140} - \frac{1}{55440} \frac{k^4}{m^4} - \frac{1}{360360} \frac{k^6}{m^6} - \right. \right. \\ & \left. \left. - \frac{1}{2402400} \frac{k^8}{m^8} - \frac{1}{15315300} \frac{k^{10}}{m^{10}} - \frac{1}{93117024} \frac{k^{12}}{m^{12}} + \dots \right) \right) \end{aligned} \quad (4.525)$$

$$\begin{aligned} \tilde{T}_{3,3;4D}^{\text{f,UV-IR}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{i}{15\pi^2} \left(\left(-\frac{599}{1470} + \frac{K}{7} \right) + \left(\frac{16}{15} - K \right) \frac{m^2}{k^2} \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{15\pi^2} \left(\left(\frac{457}{2940} - \frac{K}{28} \right) + \left(-\frac{77}{30} + K \right) \frac{m^2}{k^2} \right) \right) + \dots \end{aligned} \quad (4.526)$$

Fermions, spin 3 x 3, dimension 5:

$$\begin{aligned} \tilde{T}_{3,3;5D}^{\text{f,t,UV}} = & k^6 \pi_{\mu\nu}^3 \left(\frac{1}{\pi^2} \left(\frac{5\pi}{6144} k - \frac{\pi}{128} \frac{m^2}{k} + \frac{\pi}{64} \frac{m^4}{k^3} + \frac{\pi}{24} \frac{m^6}{k^5} - \frac{32i}{105} \frac{m^7}{k^6} - \frac{\pi}{8} \frac{m^8}{k^7} + \right. \right. \\ & \left. \left. + \frac{256i}{945} \frac{m^9}{k^8} + \frac{512i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\ & + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{\pi}{12288} k + \frac{\pi}{256} \frac{m^2}{k} - \frac{5\pi}{128} \frac{m^4}{k^3} + \frac{4i}{15} \frac{m^5}{k^4} + \frac{7\pi}{48} \frac{m^6}{k^5} - \right. \right. \\ & \left. \left. - \frac{64i}{105} \frac{m^7}{k^6} - \frac{3\pi}{16} \frac{m^8}{k^7} + \frac{64i}{189} \frac{m^9}{k^8} + \frac{512i}{3465} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.527)$$

$$\tilde{T}_{3,3;5D}^{\text{f,t,IR}} = k^6 \pi_{\mu\nu}^3 \left(\frac{i}{3\pi^2} \left(-\frac{2}{15} \frac{m^3}{k^2} + \frac{1}{35} m - \frac{1}{840} \frac{k^2}{m} - \frac{1}{27720} \frac{k^4}{m^3} - \frac{1}{384384} \frac{k^6}{m^5} - \right. \right.$$

$$\begin{aligned}
& -\frac{1}{3843840} \frac{k^8}{m^7} - \frac{7}{224040960} \frac{k^{10}}{m^9} - \frac{1}{236487680} \frac{k^{12}}{m^{11}} + \dots \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{3\pi^2} \left(\frac{2}{15} \frac{m^3}{k^2} - \frac{1}{140} m - \frac{1}{221760} \frac{k^4}{m^3} - \frac{1}{1921920} \frac{k^6}{m^5} - \right. \right. \\
& \left. \left. - \frac{1}{15375360} \frac{k^8}{m^7} - \frac{1}{112020480} \frac{k^{10}}{m^9} - \frac{1}{756760576} \frac{k^{12}}{m^{11}} + \dots \right) \right) \quad (4.528)
\end{aligned}$$

$$\tilde{T}_{3,3;5D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.529)$$

Fermions, spin 3 x 3, dimension 6:

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{f,t,UV}} &= k^6 \pi_{\mu\nu}^3 \left(\frac{i}{3\pi^3} \left(\left(-\frac{1021}{264600} + \frac{P}{840} \right) k^2 + \left(\frac{599}{14700} - \frac{P}{70} \right) m^2 + \right. \right. \\
& + \left(-\frac{31}{300} + \frac{P}{20} \right) \frac{m^4}{k^2} - \frac{1}{6} \frac{m^6}{k^4} + \left(\frac{11}{48} - \frac{K}{4} \right) \frac{m^8}{k^6} + \left(\frac{107}{300} + \frac{K}{5} \right) \frac{m^{10}}{k^8} + \\
& \left. \left. + \left(\frac{7}{600} + \frac{K}{10} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{6\pi^3} \left(\frac{1}{2520} k^2 + \left(-\frac{457}{14700} + \frac{P}{140} \right) m^2 + \left(\frac{107}{300} - \frac{P}{10} \right) \frac{m^4}{k^2} + \right. \right. \\
& + \left(-\frac{7}{12} + \frac{K}{2} \right) \frac{m^6}{k^4} + \left(\frac{1}{6} - K \right) \frac{m^8}{k^6} + \left(\frac{25}{24} + \frac{K}{2} \right) \frac{m^{10}}{k^8} + \\
& \left. \left. + \left(\frac{17}{300} + \frac{K}{5} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \quad (4.530)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{f,t,IR}} &= k^6 \pi_{\mu\nu}^3 \left(\frac{i}{2\pi^3} \left(\left(-\frac{1}{20} + \frac{L_0}{30} \right) \frac{m^4}{k^2} + \left(\frac{1}{105} - \frac{L_0}{105} \right) m^2 + \frac{L_0}{1260} k^2 - \frac{1}{20790} \frac{k^4}{m^2} - \right. \right. \\
& - \frac{1}{432432} \frac{k^6}{m^4} - \frac{1}{5405400} \frac{k^8}{m^6} - \frac{1}{52509600} \frac{k^{10}}{m^8} - \frac{1}{436486050} \frac{k^{12}}{m^{10}} - \\
& \left. \left. - \frac{1}{3259095840} \frac{k^{14}}{m^{12}} + \dots \right) \right) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{20\pi^3} \left(\left(\frac{1}{2} - \frac{L_0}{3} \right) \frac{m^4}{k^2} + \left(-\frac{1}{42} + \frac{L_0}{42} \right) m^2 - \frac{1}{16632} \frac{k^4}{m^2} - \right. \right. \\
& - \frac{1}{216216} \frac{k^6}{m^4} - \frac{1}{2162160} \frac{k^8}{m^6} - \frac{1}{18378360} \frac{k^{10}}{m^8} - \frac{1}{139675536} \frac{k^{12}}{m^{10}} - \\
& \left. \left. - \frac{1}{977728752} \frac{k^{14}}{m^{12}} + \dots \right) \right) \quad (4.531)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,3;6D}^{\text{f,UV-IR}} &= k^6 \pi_{\mu\nu}^3 \left(\frac{i}{30\pi^3} \left(\left(-\frac{1021}{26460} + \frac{K}{84} \right) k^2 + \left(\frac{389}{1470} - \frac{K}{7} \right) m^2 + \right. \right. \\
& + \left(-\frac{17}{60} + \frac{K}{2} \right) \frac{m^4}{k^2} \Big) \Big) + \\
& + k^6 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu} \left(\frac{i}{15\pi^3} \left(\left(-\frac{44}{735} + \frac{K}{56} \right) m^2 + \left(\frac{31}{60} - \frac{K}{4} \right) \frac{m^4}{k^2} \right) \right) + \dots \quad (4.532)
\end{aligned}$$

Fermions, spin 3 x 5, dimension 3:

$$\begin{aligned}
\tilde{T}_{3,5;3D}^{\text{f,t,UV}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(-\frac{3}{256} \frac{1}{k} + \frac{1}{16} \frac{m^2}{k^3} + \frac{3}{8} \frac{m^4}{k^5} - \frac{64i}{15\pi} \frac{m^5}{k^6} - 3 \frac{m^6}{k^7} + \frac{512i}{35\pi} \frac{m^7}{k^8} + 5 \frac{m^8}{k^9} - \right. \\
& \left. - \frac{1024i}{105\pi} \frac{m^9}{k^{10}} - \frac{16384i}{3465\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{7}{1024} \frac{1}{k} - \frac{9}{64} \frac{m^2}{k^3} + \frac{4i}{3\pi} \frac{m^3}{k^4} + \frac{33}{32} \frac{m^4}{k^5} - \frac{32i}{5\pi} \frac{m^5}{k^6} - \frac{13}{4} \frac{m^6}{k^7} + \right. \\
& \left. + \frac{64i}{5\pi} \frac{m^7}{k^8} + \frac{15}{4} \frac{m^8}{k^9} - \frac{2048i}{315\pi} \frac{m^9}{k^{10}} - \frac{1024i}{385\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{16} \frac{m}{k} + \frac{1}{\pi} \frac{m^2}{k^2} - \frac{3i}{4} \frac{m^3}{k^3} - \frac{16}{3\pi} \frac{m^4}{k^4} + 3i \frac{m^5}{k^5} + \frac{64}{5\pi} \frac{m^6}{k^6} - \right. \\
& \left. - 4i \frac{m^7}{k^7} - \frac{256}{35\pi} \frac{m^8}{k^8} - \frac{1024}{315\pi} \frac{m^{10}}{k^{10}} - \frac{4096}{1155\pi} \frac{m^{12}}{k^{12}} + \dots \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{i}{64} \frac{m}{k} - \frac{3i}{16} \frac{m^3}{k^3} - \frac{4}{3\pi} \frac{m^4}{k^4} + \frac{3i}{4} \frac{m^5}{k^5} + \frac{16}{5\pi} \frac{m^6}{k^6} - i \frac{m^7}{k^7} - \right. \\
& \left. - \frac{64}{35\pi} \frac{m^8}{k^8} - \frac{256}{315\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{1155\pi} \frac{m^{12}}{k^{12}} + \dots \right) \quad (4.533)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;3D}^{\text{f,t,IR}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi} \left(-\frac{4}{35} \frac{m}{k^2} + \frac{2}{315} \frac{1}{m} + \frac{1}{4620} \frac{k^2}{m^3} + \frac{1}{60060} \frac{k^4}{m^5} + \frac{1}{576576} \frac{k^6}{m^7} + \right. \right. \\
& \left. \left. + \frac{1}{4667520} \frac{k^8}{m^9} + \frac{7}{236487680} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(\frac{4}{7} \frac{m}{k^2} - \frac{1}{84} \frac{1}{m} - \frac{1}{5544} \frac{k^2}{m^3} - \frac{1}{192192} \frac{k^4}{m^5} + \right. \right. \\
& \left. \left. + \frac{1}{22404096} \frac{k^8}{m^9} + \frac{1}{94595072} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{\pi} \left(\frac{1}{5} \frac{m^2}{k^2} + \frac{1}{35} + \frac{1}{1260} \frac{k^2}{m^2} + \frac{1}{18480} \frac{k^4}{m^4} + \frac{1}{192192} \frac{k^6}{m^6} + \right. \right. \\
& \left. \left. + \frac{1}{1647360} \frac{k^8}{m^8} + \frac{1}{12446720} \frac{k^{10}}{m^{10}} + \frac{1}{85995520} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi} \left(-\frac{1}{5} \frac{m^2}{k^2} + \frac{1}{140} + \frac{1}{5040} \frac{k^2}{m^2} + \frac{1}{73920} \frac{k^4}{m^4} + \right. \right. \\
& \left. \left. + \frac{1}{768768} \frac{k^6}{m^6} + \frac{1}{6589440} \frac{k^8}{m^8} + \frac{1}{49786880} \frac{k^{10}}{m^{10}} + \frac{1}{343982080} \frac{k^{12}}{m^{12}} + \dots \right) \right) \quad (4.534)
\end{aligned}$$

$$\tilde{T}_{3,5;3D}^{\text{f,UV-IR}} = k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{4}{5\pi} \frac{m^2}{k^2} \right) + \dots \quad (4.535)$$

Fermions, spin 3 x 5, dimension 4:

$$\tilde{T}_{3,5;4D}^{\text{f,t,UV}} = k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{1937}{99225} - \frac{2P}{315} \right) + \left(-\frac{494}{3675} + \frac{2P}{35} \right) \frac{m^2}{k^2} - \frac{2}{5} \frac{m^4}{k^4} + \right. \right.$$

$$\begin{aligned}
& + \left(\frac{22}{9} - \frac{4K}{3} \right) \frac{m^6}{k^6} + \left(-\frac{5}{3} + 4K \right) \frac{m^8}{k^8} - \left(\frac{117}{25} + \frac{12K}{5} \right) \frac{m^{10}}{k^{10}} - \\
& - \left(\frac{16}{75} + \frac{16K}{15} \right) \frac{m^{12}}{k^{12}} + \dots \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{1231}{132300} + \frac{P}{420} \right) + \left(\frac{1513}{7350} - \frac{2P}{35} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{53}{60} + \frac{K}{2} \right) \frac{m^4}{k^4} + (2 - 2K) \frac{m^6}{k^6} + \left(-\frac{5}{24} + \frac{7K}{2} \right) \frac{m^8}{k^8} - \\
& \left. \left. - \left(\frac{259}{75} + \frac{8K}{5} \right) \frac{m^{10}}{k^{10}} - \left(\frac{61}{300} + \frac{3K}{5} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \quad (4.536)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{f,t,IR}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(-\frac{2}{7} + \frac{2L_0}{7} \right) \frac{m^2}{k^2} - \frac{2L_0}{63} + \frac{1}{462} \frac{k^2}{m^2} + \frac{1}{9009} \frac{k^4}{m^4} + \right. \right. \\
& + \frac{1}{108108} \frac{k^6}{m^6} + \frac{1}{1021020} \frac{k^8}{m^8} + \frac{1}{8314020} \frac{k^{10}}{m^{10}} + \frac{1}{61108047} \frac{k^{12}}{m^{12}} + \dots \Big) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{35\pi^2} \left((2 - 2L_0) \frac{m^2}{k^2} + \frac{L_0}{12} - \frac{1}{396} \frac{k^2}{m^2} - \frac{1}{20592} \frac{k^4}{m^4} + \right. \right. \\
& + \frac{1}{3500640} \frac{k^8}{m^8} + \frac{1}{16628040} \frac{k^{10}}{m^{10}} + \frac{1}{93117024} \frac{k^{12}}{m^{12}} + \dots \Big) \Big) \quad (4.537)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{f,UV-IR}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{35\pi^2} \left(\left(\frac{1937}{2835} - \frac{2K}{9} \right) + \left(-\frac{284}{105} + 2K \right) \frac{m^2}{k^2} \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{35\pi^2} \left(\left(-\frac{1231}{3780} + \frac{K}{12} \right) + \left(\frac{1093}{210} - 2K \right) \frac{m^2}{k^2} \right) \right) + \dots \quad (4.538)
\end{aligned}$$

Fermions, spin 3 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{\text{f,t,UV}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{\pi}{2048} k + \frac{3\pi}{512} \frac{m^2}{k} - \frac{\pi}{64} \frac{m^4}{k^3} - \frac{\pi}{16} \frac{m^6}{k^5} + \frac{64i}{105} \frac{m^7}{k^6} + \frac{3\pi}{8} \frac{m^8}{k^7} - \right. \right. \\
& - \frac{512i}{315} \frac{m^9}{k^8} - \frac{\pi}{2} \frac{m^{10}}{k^9} + \frac{1024i}{1155} \frac{m^{11}}{k^{10}} + \dots \Big) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(\frac{\pi}{8192} k - \frac{7\pi}{2048} \frac{m^2}{k} + \frac{9\pi}{256} \frac{m^4}{k^3} - \frac{4i}{15} \frac{m^5}{k^4} - \frac{11\pi}{64} \frac{m^6}{k^5} + \right. \right. \\
& + \frac{32i}{35} \frac{m^7}{k^6} + \frac{13\pi}{32} \frac{m^8}{k^7} - \frac{64i}{45} \frac{m^9}{k^8} - \frac{3\pi}{8} \frac{m^{10}}{k^9} + \frac{2048i}{3465} \frac{m^{11}}{k^{10}} + \dots \Big) \Big) \quad (4.539)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{\text{f,t,IR}} &= k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{15\pi^2} \left(\frac{4}{7} \frac{m^3}{k^2} - \frac{2}{21} m + \frac{1}{308} \frac{k^2}{m} + \frac{1}{12012} \frac{k^4}{m^3} + \frac{1}{192192} \frac{k^6}{m^5} + \right. \right. \\
& + \frac{1}{2178176} \frac{k^8}{m^7} + \frac{7}{141892608} \frac{k^{10}}{m^9} + \frac{1}{165541376} \frac{k^{12}}{m^{11}} + \dots \Big) \Big) + \\
& + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(-\frac{4}{21} \frac{m^3}{k^2} + \frac{1}{84} m - \frac{1}{5544} \frac{k^2}{m} - \frac{1}{576576} \frac{k^4}{m^3} + \right. \right.
\end{aligned}$$

$$+ \frac{1}{156828672} \frac{k^8}{m^7} + \frac{1}{851355648} \frac{k^{10}}{m^9} + \frac{1}{5297324032} \frac{k^{12}}{m^{11}} + \dots \Big) \Big) \quad (4.540)$$

$$\tilde{T}_{3,5;5D}^{\text{f,UV-IR}} = \dots \text{(i.e. no overlap)} \quad (4.541)$$

Fermions, spin 3 x 5, dimension 6:

$$\begin{aligned} \tilde{T}_{3,5;6D}^{\text{f,t,UV}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{11861}{16008300} - \frac{P}{4620} \right) k^2 + \left(-\frac{1937}{198450} + \frac{P}{315} \right) m^2 + \right. \right. \\ & + \left(\frac{247}{7350} - \frac{P}{70} \right) \frac{m^4}{k^2} + \frac{1}{15} \frac{m^6}{k^4} + \left(-\frac{19}{72} + \frac{K}{6} \right) \frac{m^8}{k^6} + \\ & + \left. \left(\frac{13}{150} - \frac{2K}{5} \right) \frac{m^{10}}{k^8} + \left(\frac{127}{300} + \frac{K}{5} \right) \frac{m^{12}}{k^{10}} + \dots \right) \Big) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(-\frac{29497}{192099600} + \frac{P}{27720} \right) k^2 + \left(\frac{1231}{264600} - \frac{P}{840} \right) m^2 + \right. \right. \\ & + \left(-\frac{1513}{29400} + \frac{P}{70} \right) \frac{m^4}{k^2} + \left(\frac{43}{360} - \frac{K}{12} \right) \frac{m^6}{k^4} + \left(-\frac{3}{16} + \frac{K}{4} \right) \frac{m^8}{k^6} - \\ & - \left. \left(\frac{59}{1200} + \frac{7K}{20} \right) \frac{m^{10}}{k^8} + \left(\frac{31}{100} + \frac{2K}{15} \right) \frac{m^{12}}{k^{10}} + \dots \right) \Big) \end{aligned} \quad (4.542)$$

$$\begin{aligned} \tilde{T}_{3,5;6D}^{\text{f,t,IR}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{5\pi^3} \left(\left(\frac{3}{28} - \frac{L_0}{14} \right) \frac{m^4}{k^2} + \left(-\frac{1}{63} + \frac{L_0}{63} \right) m^2 - \frac{L_0}{924} k^2 + \frac{1}{18018} \frac{k^4}{m^2} + \right. \right. \\ & + \frac{1}{432432} \frac{k^6}{m^4} + \frac{1}{6126120} \frac{k^8}{m^6} + \frac{1}{66512160} \frac{k^{10}}{m^8} + \frac{1}{611080470} \frac{k^{12}}{m^{10}} + \\ & + \left. \frac{1}{4997280288} \frac{k^{14}}{m^{12}} + \dots \right) \Big) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{70\pi^3} \left(\left(-\frac{3}{2} + L_0 \right) \frac{m^4}{k^2} + \left(\frac{1}{12} - \frac{L_0}{12} \right) m^2 + \frac{L_0}{396} k^2 - \right. \right. \\ & - \frac{1}{20592} \frac{k^4}{m^2} + \frac{1}{10501920} \frac{k^8}{m^6} + \frac{1}{66512160} \frac{k^{10}}{m^8} + \frac{1}{465585120} \frac{k^{12}}{m^{10}} + \\ & + \left. \frac{1}{3212537328} \frac{k^{14}}{m^{12}} + \dots \right) \Big) \end{aligned} \quad (4.543)$$

$$\begin{aligned} \tilde{T}_{3,5;6D}^{\text{f,UV-IR}} = & k^8 \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{35\pi^3} \left(\left(\frac{11861}{457380} - \frac{K}{132} \right) k^2 + \left(-\frac{1307}{5670} + \frac{K}{9} \right) m^2 + \right. \right. \\ & + \left. \left(\frac{179}{420} - \frac{K}{2} \right) \frac{m^4}{k^2} \right) \Big) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{70\pi^3} \left(\left(-\frac{29497}{2744280} + \frac{K}{396} - \frac{\log(2)}{198} - \frac{\log(\pi)}{396} + \right. \right. \right. \\ & + \left. \left. \frac{1}{396} \log(4\pi) \right) k^2 + \left(\frac{229}{945} - \frac{K}{12} \right) m^2 + \left(-\frac{883}{420} + K \right) \frac{m^4}{k^2} \right) \Big) + \dots \end{aligned} \quad (4.544)$$

Fermions, spin 4 x 4, dimension 3:

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{\text{f,t,UV}} = & k^8 \pi_{\mu\nu}^4 \left(-\frac{1}{128} \frac{1}{k} + \frac{1}{16} \frac{m^2}{k^3} - \frac{2i}{3\pi} \frac{m^3}{k^4} - \frac{16i}{15\pi} \frac{m^5}{k^6} - \frac{m^6}{k^7} + \frac{192i}{35\pi} \frac{m^7}{k^8} + 2 \frac{m^8}{k^9} - \right. \\
& \left. - \frac{256i}{63\pi} \frac{m^9}{k^{10}} - \frac{1024i}{495\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\nu\nu}^2 \pi_{\nu\nu} \left(-\frac{3}{32} \frac{m^2}{k^3} + \frac{2i}{\pi} \frac{m^3}{k^4} + \frac{9}{8} \frac{m^4}{k^5} - \frac{8i}{\pi} \frac{m^5}{k^6} - \frac{9}{2} \frac{m^6}{k^7} + \frac{96i}{5\pi} \frac{m^7}{k^8} + \right. \\
& \left. + 6 \frac{m^8}{k^9} - \frac{384i}{35\pi} \frac{m^9}{k^{10}} - \frac{512i}{105\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{3}{1024} \frac{1}{k} - \frac{3}{64} \frac{m^2}{k^3} + \frac{9}{32} \frac{m^4}{k^5} - \frac{8i}{5\pi} \frac{m^5}{k^6} - \frac{3}{4} \frac{m^6}{k^7} + \frac{96i}{35\pi} \frac{m^7}{k^8} + \frac{3}{4} \frac{m^8}{k^9} - \right. \\
& \left. - \frac{128i}{105\pi} \frac{m^9}{k^{10}} - \frac{512i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^3 \left(\frac{i}{32} \frac{m}{k} + \frac{1}{\pi} \frac{m^2}{k^2} - \frac{3i}{8} \frac{m^3}{k^3} - \frac{8}{3\pi} \frac{m^4}{k^4} + \frac{3i}{2} \frac{m^5}{k^5} + \frac{32}{5\pi} \frac{m^6}{k^6} - \right. \\
& \left. - 2i \frac{m^7}{k^7} - \frac{128}{35\pi} \frac{m^8}{k^8} - \frac{512}{315\pi} \frac{m^{10}}{k^{10}} - \frac{2048}{1155\pi} \frac{m^{12}}{k^{12}} + \dots \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu} \pi_{\nu\nu} \left(\frac{3i}{64} \frac{m}{k} - \frac{9i}{16} \frac{m^3}{k^3} - \frac{4}{\pi} \frac{m^4}{k^4} + \frac{9i}{4} \frac{m^5}{k^5} + \frac{48}{5\pi} \frac{m^6}{k^6} - 3i \frac{m^7}{k^7} - \right. \\
& \left. - \frac{192}{35\pi} \frac{m^8}{k^8} - \frac{256}{105\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{385\pi} \frac{m^{12}}{k^{12}} + \dots \right) \quad (4.545)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;3D}^{\text{f,t,IR}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi} \left(-\frac{2}{5} \frac{m^3}{k^4} - \frac{3}{35} \frac{m}{k^2} + \frac{1}{252} \frac{1}{m} + \frac{1}{7920} \frac{k^2}{m^3} + \frac{3}{320320} \frac{k^4}{m^5} + \frac{1}{1048320} \frac{k^6}{m^7} + \right. \right. \\
& \left. \left. + \frac{1}{8616960} \frac{k^8}{m^9} + \frac{3}{189190144} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\nu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi} \left(\frac{4}{5} \frac{m^3}{k^4} + \frac{3}{70} \frac{m}{k^2} + \frac{1}{840} \frac{1}{m} + \frac{1}{12320} \frac{k^2}{m^3} + \frac{1}{128128} \frac{k^4}{m^5} + \right. \right. \\
& \left. \left. + \frac{1}{1098240} \frac{k^6}{m^7} + \frac{3}{24893440} \frac{k^8}{m^9} + \frac{3}{171991040} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(-2 \frac{m^3}{k^4} + \frac{3}{14} \frac{m}{k^2} - \frac{1}{168} \frac{1}{m} - \frac{1}{7392} \frac{k^2}{m^3} - \frac{1}{128128} \frac{k^4}{m^5} - \right. \right. \\
& \left. \left. - \frac{1}{1537536} \frac{k^6}{m^7} - \frac{1}{14936064} \frac{k^8}{m^9} - \frac{3}{378380288} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^3 \left(\frac{1}{\pi} \left(\frac{3}{5} \frac{m^2}{k^2} + \frac{1}{70} + \frac{1}{2520} \frac{k^2}{m^2} + \frac{1}{36960} \frac{k^4}{m^4} + \frac{1}{384384} \frac{k^6}{m^6} + \right. \right. \\
& \left. \left. + \frac{1}{3294720} \frac{k^8}{m^8} + \frac{1}{24893440} \frac{k^{10}}{m^{10}} + \frac{1}{171991040} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\
& + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu} \pi_{\nu\nu} \left(\frac{1}{\pi} \left(-\frac{3}{5} \frac{m^2}{k^2} + \frac{3}{140} + \frac{1}{1680} \frac{k^2}{m^2} + \frac{1}{24640} \frac{k^4}{m^4} + \right. \right.
\end{aligned}$$

$$+ \frac{1}{256256} \frac{k^6}{m^6} + \frac{1}{2196480} \frac{k^8}{m^8} + \frac{3}{49786880} \frac{k^{10}}{m^{10}} + \frac{3}{343982080} \frac{k^{12}}{m^{12}} + \dots \Bigg) \Bigg) \quad (4.546)$$

$$\tilde{T}_{4,4;3D}^{\text{f,t,UV-IR}} = k^8 \pi_{\mu\nu}^4 \left(-\frac{4i}{15\pi} \frac{m^3}{k^4} \right) + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{6i}{5\pi} \frac{m^3}{k^4} \right) + k^6 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^3 \left(\frac{2}{5\pi} \frac{m^2}{k^2} \right) + \dots \quad (4.547)$$

Fermions, spin 4 x 4, dimension 4:

$$\begin{aligned} \tilde{T}_{4,4;4D}^{\text{f,t,UV}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\left(\frac{50}{3969} - \frac{P}{252} \right) + \left(-\frac{141}{1225} + \frac{3P}{70} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(-\frac{161}{600} - \frac{P}{10} + \frac{L_0}{4} \right) \frac{m^4}{k^4} + \left(\frac{17}{18} - \frac{K}{3} \right) \frac{m^6}{k^6} + \left(-\frac{7}{8} + \frac{3K}{2} \right) \frac{m^8}{k^8} - \\ & \left. \left. - \left(\frac{113}{60} + K \right) \frac{m^{10}}{k^{10}} - \left(\frac{23}{300} + \frac{7K}{15} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(\frac{62}{33075} - \frac{P}{840} \right) + \left(\frac{281}{2450} - \frac{3P}{140} \right) \frac{m^2}{k^2} - \right. \right. \\ & - \left(\frac{111}{200} - \frac{9P}{20} + \frac{3L_0}{4} \right) \frac{m^4}{k^4} + \left(\frac{37}{12} - \frac{5K}{2} \right) \frac{m^6}{k^6} + \left(-\frac{17}{16} + \frac{21K}{4} \right) \frac{m^8}{k^8} - \\ & \left. \left. - \left(\frac{1113}{200} + \frac{27K}{10} \right) \frac{m^{10}}{k^{10}} - \left(\frac{59}{200} + \frac{11K}{10} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(-\frac{563}{132300} + \frac{P}{840} \right) + \left(\frac{88}{1225} - \frac{3P}{140} \right) \frac{m^2}{k^2} + \right. \right. \\ & + \left(-\frac{23}{50} + \frac{3P}{20} \right) \frac{m^4}{k^4} + \left(\frac{5}{12} - \frac{K}{2} \right) \frac{m^6}{k^6} + \left(\frac{1}{16} + \frac{3K}{4} \right) \frac{m^8}{k^8} - \\ & \left. \left. - \left(\frac{137}{200} + \frac{3K}{10} \right) \frac{m^{10}}{k^{10}} - \left(\frac{9}{200} + \frac{K}{10} \right) \frac{m^{12}}{k^{12}} + \dots \right) \right) \end{aligned} \quad (4.548)$$

$$\begin{aligned} \tilde{T}_{4,4;4D}^{\text{f,t,IR}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{2\pi^2} \left(\left(-\frac{9}{20} + \frac{3L_0}{10} \right) \frac{m^4}{k^4} + \left(-\frac{3}{35} + \frac{3L_0}{35} \right) \frac{m^2}{k^2} - \frac{L_0}{126} + \frac{1}{1980} \frac{k^2}{m^2} + \right. \right. \\ & + \frac{1}{40040} \frac{k^4}{m^4} + \frac{1}{491400} \frac{k^6}{m^6} + \frac{1}{4712400} \frac{k^8}{m^8} + \frac{1}{38798760} \frac{k^{10}}{m^{10}} + \\ & \left. \left. + \frac{1}{287567280} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{2\pi^2} \left(\left(\frac{9}{10} - \frac{3L_0}{5} \right) \frac{m^4}{k^4} + \left(\frac{3}{70} - \frac{3L_0}{70} \right) \frac{m^2}{k^2} - \frac{L_0}{420} + \right. \right. \\ & + \frac{1}{3080} \frac{k^2}{m^2} + \frac{1}{48048} \frac{k^4}{m^4} + \frac{1}{514800} \frac{k^6}{m^6} + \frac{3}{13613600} \frac{k^8}{m^8} + \frac{1}{35271600} \frac{k^{10}}{m^{10}} + \\ & \left. \left. + \frac{1}{250699680} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^2} \left(\left(-\frac{9}{2} + 3L_0 \right) \frac{m^4}{k^4} + \left(\frac{3}{7} - \frac{3L_0}{7} \right) \frac{m^2}{k^2} + \frac{L_0}{42} - \frac{1}{924} \frac{k^2}{m^2} - \right. \right. \end{aligned}$$

$$\begin{aligned} & -\frac{1}{24024} \frac{k^4}{m^4} - \frac{1}{360360} \frac{k^6}{m^6} - \frac{1}{4084080} \frac{k^8}{m^8} - \frac{1}{38798760} \frac{k^{10}}{m^{10}} - \\ & - \frac{1}{325909584} \frac{k^{12}}{m^{12}} + \dots \end{aligned} \quad (4.549)$$

$$\begin{aligned} \tilde{T}_{4,4;4D}^{\text{f,UV-IR}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\left(\frac{50}{3969} - \frac{K}{252} \right) + \left(-\frac{177}{2450} + \frac{3K}{70} \right) \frac{m^2}{k^2} - \left(\frac{13}{300} + \frac{K}{10} \right) \frac{m^4}{k^4} \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(\frac{62}{6615} - \frac{K}{168} \right) + \left(\frac{457}{980} - \frac{3K}{28} \right) \frac{m^2}{k^2} + \right. \right. \\ & \left. \left. + \left(-\frac{201}{40} + \frac{9K}{4} \right) \frac{m^4}{k^4} \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^2} \left(\left(-\frac{563}{6615} + \frac{K}{42} \right) + \left(\frac{247}{245} - \frac{3K}{7} \right) \frac{m^2}{k^2} + \right. \right. \\ & \left. \left. + \left(-\frac{47}{10} + 3K \right) \frac{m^4}{k^4} \right) \right) + \dots \end{aligned} \quad (4.550)$$

Fermions, spin 4 x 4, dimension 5:

$$\begin{aligned} \tilde{T}_{4,4;5D}^{\text{f,t,UV}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{1}{\pi^2} \left(-\frac{3\pi}{10240} k + \frac{\pi}{256} \frac{m^2}{k} - \frac{\pi}{64} \frac{m^4}{k^3} + \frac{2i}{15} \frac{m^5}{k^4} + \frac{16i}{105} \frac{m^7}{k^6} + \frac{\pi}{8} \frac{m^8}{k^7} - \right. \right. \\ & \left. \left. - \frac{64i}{105} \frac{m^9}{k^8} - \frac{\pi}{5} \frac{m^{10}}{k^9} + \frac{256i}{693} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(-\frac{3\pi}{20480} k + \frac{3\pi}{128} \frac{m^4}{k^3} - \frac{2i}{5} \frac{m^5}{k^4} - \frac{3\pi}{16} \frac{m^6}{k^5} + \frac{8i}{7} \frac{m^7}{k^6} + \right. \right. \\ & \left. \left. + \frac{9\pi}{16} \frac{m^8}{k^7} - \frac{32i}{15} \frac{m^9}{k^8} - \frac{3\pi}{5} \frac{m^{10}}{k^9} + \frac{384i}{385} \frac{m^{11}}{k^{10}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(\frac{3\pi}{40960} k - \frac{3\pi}{2048} \frac{m^2}{k} + \frac{3\pi}{256} \frac{m^4}{k^3} - \frac{3\pi}{64} \frac{m^6}{k^5} + \frac{8i}{35} \frac{m^7}{k^6} + \right. \right. \\ & \left. \left. + \frac{3\pi}{32} \frac{m^8}{k^7} - \frac{32i}{105} \frac{m^9}{k^8} - \frac{3\pi}{40} \frac{m^{10}}{k^9} + \frac{128i}{1155} \frac{m^{11}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.551)$$

$$\begin{aligned} \tilde{T}_{4,4;5D}^{\text{f,t,IR}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^2} \left(\frac{2}{25} \frac{m^5}{k^4} + \frac{1}{35} \frac{m^3}{k^2} - \frac{1}{252} m + \frac{1}{7920} \frac{k^2}{m} + \frac{1}{320320} \frac{k^4}{m^3} + \frac{1}{5241600} \frac{k^6}{m^5} + \right. \right. \\ & \left. \left. + \frac{1}{60318720} \frac{k^8}{m^7} + \frac{1}{567570432} \frac{k^{10}}{m^9} + \frac{1}{4674109440} \frac{k^{12}}{m^{11}} + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(-\frac{4}{25} \frac{m^5}{k^4} - \frac{1}{70} \frac{m^3}{k^2} - \frac{1}{840} m + \frac{1}{12320} \frac{k^2}{m} + \frac{1}{384384} \frac{k^4}{m^3} + \right. \right. \\ & \left. \left. + \frac{1}{5491200} \frac{k^6}{m^5} + \frac{3}{174254080} \frac{k^8}{m^7} + \frac{1}{515973120} \frac{k^{10}}{m^9} + \frac{1}{4074864640} \frac{k^{12}}{m^{11}} + \right. \right. \\ & \left. \left. + \dots \right) \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\frac{2}{5} \frac{m^5}{k^4} - \frac{1}{14} \frac{m^3}{k^2} + \frac{1}{168} m - \frac{1}{7392} \frac{k^2}{m} - \frac{1}{384384} \frac{k^4}{m^3} - \right. \right. \\ & \left. \left. - \frac{1}{7687680} \frac{k^6}{m^5} - \frac{1}{104552448} \frac{k^8}{m^7} - \frac{1}{1135140864} \frac{k^{10}}{m^9} - \frac{1}{10594648064} \frac{k^{12}}{m^{11}} + \right. \right. \end{aligned}$$

$$+ \dots)) \quad (4.552)$$

$$\tilde{T}_{4,4;5D}^{\text{f,t,UV-IR}} = k^8 \pi_{\mu\nu}^4 \left(\frac{4i}{75\pi^2} \frac{m^5}{k^4} \right) + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(-\frac{6i}{25\pi^2} \frac{m^5}{k^4} \right) + \dots \quad (4.553)$$

Fermions, spin 4 x 4, dimension 6:

$$\begin{aligned} \tilde{T}_{4,4;6D}^{\text{f,t,UV}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{\pi^3} \left(\left(\frac{859}{1960200} - \frac{P}{7920} \right) k^2 + \left(-\frac{25}{3969} + \frac{P}{504} \right) m^2 + \right. \right. \\ & + \left(\frac{141}{4900} - \frac{3P}{280} \right) \frac{m^4}{k^2} - \left(-\frac{211}{3600} - \frac{P}{60} + \frac{L_0}{24} \right) \frac{m^6}{k^4} + \\ & + \left(-\frac{31}{288} + \frac{K}{24} \right) \frac{m^8}{k^6} + \left(\frac{23}{400} - \frac{3K}{20} \right) \frac{m^{10}}{k^8} + \left(\frac{41}{240} + \frac{K}{12} \right) \frac{m^{12}}{k^{10}} + \\ & \left. + \dots \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(\frac{5353}{21344400} - \frac{P}{12320} \right) k^2 + \left(-\frac{31}{33075} + \frac{P}{1680} \right) m^2 + \right. \right. \\ & + \left(-\frac{281}{9800} + \frac{3P}{560} \right) \frac{m^4}{k^2} + \left(\frac{61}{1200} - \frac{3P}{40} + \frac{L_0}{8} \right) \frac{m^6}{k^4} + \\ & + \left(-\frac{59}{192} + \frac{5K}{16} \right) \frac{m^8}{k^6} + \left(\frac{1}{800} - \frac{21K}{40} \right) \frac{m^{10}}{k^8} + \left(\frac{401}{800} + \frac{9K}{40} \right) \frac{m^{12}}{k^{10}} + \\ & \left. + \dots \right) + \\ & + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(-\frac{1627}{16008300} + \frac{P}{36960} \right) k^2 + \left(\frac{563}{264600} - \frac{P}{1680} \right) m^2 + \right. \right. \\ & + \left(-\frac{22}{1225} + \frac{3P}{560} \right) \frac{m^4}{k^2} + \left(\frac{23}{300} - \frac{P}{40} \right) \frac{m^6}{k^4} + \left(-\frac{7}{192} + \frac{K}{16} \right) \frac{m^8}{k^6} - \\ & \left. \left. - \left(\frac{17}{800} + \frac{3K}{40} \right) \frac{m^{10}}{k^8} + \left(\frac{49}{800} + \frac{K}{40} \right) \frac{m^{12}}{k^{10}} + \dots \right) \right) \end{aligned} \quad (4.554)$$

$$\begin{aligned} \tilde{T}_{4,4;6D}^{\text{f,t,IR}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{8\pi^3} \left(\left(\frac{11}{30} - \frac{L_0}{5} \right) \frac{m^6}{k^4} + \left(\frac{9}{70} - \frac{3L_0}{35} \right) \frac{m^4}{k^2} + \left(-\frac{1}{63} + \frac{L_0}{63} \right) m^2 - \right. \right. \\ & - \frac{L_0}{990} k^2 + \frac{1}{20020} \frac{k^4}{m^2} + \frac{1}{491400} \frac{k^6}{m^4} + \frac{1}{7068600} \frac{k^8}{m^6} + \frac{1}{77597520} \frac{k^{10}}{m^8} + \\ & \left. + \frac{1}{718918200} \frac{k^{12}}{m^{10}} + \frac{1}{5917831920} \frac{k^{14}}{m^{12}} + \dots \right) + \\ & + k^8 \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{i}{4\pi^3} \left(\left(-\frac{11}{30} + \frac{L_0}{5} \right) \frac{m^6}{k^4} + \left(-\frac{9}{280} + \frac{3L_0}{140} \right) \frac{m^4}{k^2} + \right. \right. \\ & + \left(-\frac{1}{420} + \frac{L_0}{420} \right) m^2 - \frac{L_0}{3080} k^2 + \frac{1}{48048} \frac{k^4}{m^2} + \frac{1}{1029600} \frac{k^6}{m^4} + \\ & + \frac{1}{13613600} \frac{k^8}{m^6} + \frac{1}{141086400} \frac{k^{10}}{m^8} + \frac{1}{1253498400} \frac{k^{12}}{m^{10}} + \\ & \left. \left. + \frac{1}{9994560576} \frac{k^{14}}{m^{12}} + \dots \right) \right) + \end{aligned}$$

$$\begin{aligned}
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{40\pi^3} \left(\left(\frac{11}{6} - L_0 \right) \frac{m^6}{k^4} + \left(-\frac{9}{28} + \frac{3L_0}{14} \right) \frac{m^4}{k^2} + \right. \right. \\
& \quad + \left(\frac{1}{42} - \frac{L_0}{42} \right) m^2 + \frac{L_0}{924} k^2 - \frac{1}{24024} \frac{k^4}{m^2} - \frac{1}{720720} \frac{k^6}{m^4} - \frac{1}{12252240} \frac{k^8}{m^6} - \\
& \quad \left. \left. - \frac{1}{155195040} \frac{k^{10}}{m^8} - \frac{1}{1629547920} \frac{k^{12}}{m^{10}} - \frac{1}{14991840864} \frac{k^{14}}{m^{12}} + \dots \right) \right) \quad (4.555)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{4,4;6D}^{\text{f,UV-IR}} = & k^8 \pi_{\mu\nu}^4 \left(\frac{i}{4\pi^3} \left(\left(\frac{859}{490050} - \frac{K}{1980} \right) k^2 + \left(-\frac{137}{7938} + \frac{K}{126} \right) m^2 + \right. \right. \\
& \quad + \left(\frac{249}{4900} - \frac{3K}{70} \right) \frac{m^4}{k^2} + \left(\frac{23}{450} + \frac{K}{15} \right) \frac{m^6}{k^4} \left. \right) + \\
& + k^8 \pi_{\mu\mu} \pi_{\nu\nu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{40\pi^3} \left(\left(\frac{5353}{533610} - \frac{K}{308} \right) k^2 + \left(-\frac{181}{13230} + \frac{K}{42} \right) m^2 + \right. \right. \\
& \quad + \left(-\frac{809}{980} + \frac{3K}{14} \right) \frac{m^4}{k^2} + \left(\frac{57}{10} - 3K \right) \frac{m^6}{k^4} \left. \right) + \\
& + k^8 \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{i}{20\pi^3} \left(\left(-\frac{1627}{800415} + \frac{K}{1848} \right) k^2 + \left(\frac{811}{26460} - \frac{K}{84} \right) m^2 + \right. \right. \\
& \quad + \left(-\frac{389}{1960} + \frac{3K}{28} \right) \frac{m^4}{k^2} + \left(\frac{37}{60} - \frac{K}{2} \right) \frac{m^6}{k^4} \left. \right) + \dots \quad (4.556)
\end{aligned}$$

Fermions, spin 5 x 5, dimension 3:

$$\begin{aligned}
\tilde{T}_{5,5;3D}^{\text{f,t,UV}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{1}{256} \frac{1}{k} - \frac{3}{64} \frac{m^2}{k^3} + \frac{4i}{3\pi} \frac{m^3}{k^4} + \frac{1}{8} \frac{m^4}{k^5} + \frac{1}{2} \frac{m^6}{k^7} - \frac{512i}{105\pi} \frac{m^7}{k^8} - 3 \frac{m^8}{k^9} + \right. \\
& \quad + \frac{4096i}{315\pi} \frac{m^9}{k^{10}} + 4 \frac{m^{10}}{k^{11}} - \frac{8192i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \left. \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\nu\nu}^3 \pi_{\nu\nu}^2 \left(\frac{1}{256} \frac{1}{k} + \frac{1}{64} \frac{m^2}{k^3} - \frac{8i}{3\pi} \frac{m^3}{k^4} - \frac{7}{8} \frac{m^4}{k^5} + \frac{128i}{15\pi} \frac{m^5}{k^6} + \frac{13}{2} \frac{m^6}{k^7} - \right. \\
& \quad - \frac{4096i}{105\pi} \frac{m^7}{k^8} - 19 \frac{m^8}{k^9} + \frac{22528i}{315\pi} \frac{m^9}{k^{10}} + 20 \frac{m^{10}}{k^{11}} - \frac{16384i}{495\pi} \frac{m^{11}}{k^{12}} + \dots \left. \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \pi_{\nu\nu}^2 \left(-\frac{9}{2048} \frac{1}{k} + \frac{51}{512} \frac{m^2}{k^3} - \frac{57}{64} \frac{m^4}{k^5} + \frac{32i}{5\pi} \frac{m^5}{k^6} + \frac{63}{16} \frac{m^6}{k^7} - \right. \\
& \quad - \frac{704i}{35\pi} \frac{m^7}{k^8} - \frac{69}{8} \frac{m^8}{k^9} + \frac{1024i}{35\pi} \frac{m^9}{k^{10}} + \frac{15}{2} \frac{m^{10}}{k^{11}} - \frac{13312i}{1155\pi} \frac{m^{11}}{k^{12}} + \dots \left. \right) + \\
& + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^4 \left(-\frac{i}{64} \frac{m}{k} - \frac{1}{\pi} \frac{m^2}{k^2} + \frac{i}{4} \frac{m^3}{k^3} + \frac{4}{3\pi} \frac{m^4}{k^4} - \frac{3i}{2} \frac{m^5}{k^5} - \frac{128}{15\pi} \frac{m^6}{k^6} + \right. \\
& \quad + 4i \frac{m^7}{k^7} + \frac{512}{35\pi} \frac{m^8}{k^8} - 4i \frac{m^9}{k^9} - \frac{2048}{315\pi} \frac{m^{10}}{k^{10}} - \frac{8192}{3465\pi} \frac{m^{12}}{k^{12}} + \dots \left. \right) + \\
& + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\nu\nu}^2 \pi_{\nu\nu}^2 \left(-\frac{3i}{64} \frac{m}{k} + \frac{3i}{4} \frac{m^3}{k^3} + \frac{8}{\pi} \frac{m^4}{k^4} - \frac{9i}{2} \frac{m^5}{k^5} - \frac{128}{5\pi} \frac{m^6}{k^6} + \right. \\
& \quad + 12i \frac{m^7}{k^7} + \frac{1536}{35\pi} \frac{m^8}{k^8} - 12i \frac{m^9}{k^9} - \frac{2048}{105\pi} \frac{m^{10}}{k^{10}} - \frac{8192}{1155\pi} \frac{m^{12}}{k^{12}} + \dots \left. \right) + \\
& + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(-\frac{3i}{512} \frac{m}{k} + \frac{3i}{32} \frac{m^3}{k^3} - \frac{9i}{16} \frac{m^5}{k^5} - \frac{16}{5\pi} \frac{m^6}{k^6} + \frac{3i}{2} \frac{m^7}{k^7} + \right.
\end{aligned}$$

$$+ \frac{192}{35\pi} \frac{m^8}{k^8} - \frac{3i}{2} \frac{m^9}{k^9} - \frac{256}{105\pi} \frac{m^{10}}{k^{10}} - \frac{1024}{1155\pi} \frac{m^{12}}{k^{12}} + \dots \quad (4.557)$$

$$\begin{aligned} \tilde{T}_{5,5;3D}^{\text{f,t,IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{5\pi} \left(\frac{36}{7} \frac{m^3}{k^4} + \frac{16}{63} \frac{m}{k^2} - \frac{2}{231} \frac{1}{m} - \frac{2}{9009} \frac{k^2}{m^3} - \frac{1}{72072} \frac{k^4}{m^5} - \frac{1}{816816} \frac{k^6}{m^7} - \right. \right. \\ & \left. \left. - \frac{7}{53209728} \frac{k^8}{m^9} - \frac{1}{62078016} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{5\pi} \left(-\frac{72}{7} \frac{m^3}{k^4} + \frac{8}{63} \frac{m}{k^2} - \frac{8}{693} \frac{1}{m} - \frac{1}{2574} \frac{k^2}{m^3} - \frac{1}{36036} \frac{k^4}{m^5} - \right. \right. \\ & \left. \left. - \frac{1}{376992} \frac{k^6}{m^7} - \frac{1}{3325608} \frac{k^8}{m^9} - \frac{1}{26138112} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi} \left(\frac{36}{7} \frac{m^3}{k^4} - \frac{8}{21} \frac{m}{k^2} + \frac{1}{132} \frac{1}{m} + \frac{1}{8008} \frac{k^2}{m^3} + \frac{1}{192192} \frac{k^4}{m^5} + \right. \right. \\ & \left. \left. + \frac{1}{3267264} \frac{k^6}{m^7} + \frac{1}{47297536} \frac{k^8}{m^9} + \frac{1}{662165504} \frac{k^{10}}{m^{11}} + \dots \right) \right) + \\ & + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^4 \left(\frac{1}{5\pi} \left(-4 \frac{m^4}{k^4} - \frac{27}{7} \frac{m^2}{k^2} - \frac{2}{63} - \frac{1}{1386} \frac{k^2}{m^2} - \frac{1}{24024} \frac{k^4}{m^4} - \right. \right. \\ & \left. \left. - \frac{1}{288288} \frac{k^6}{m^6} - \frac{1}{2800512} \frac{k^8}{m^8} - \frac{1}{23648768} \frac{k^{10}}{m^{10}} - \frac{1}{180590592} \frac{k^{12}}{m^{12}} + \right. \right. \\ & \left. \left. + \dots \right) \right) + \\ & + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{1}{5\pi} \left(8 \frac{m^4}{k^4} + \frac{24}{7} \frac{m^2}{k^2} - \frac{2}{21} - \frac{1}{462} \frac{k^2}{m^2} - \frac{1}{8008} \frac{k^4}{m^4} - \right. \right. \\ & \left. \left. - \frac{1}{96096} \frac{k^6}{m^6} - \frac{1}{933504} \frac{k^8}{m^8} - \frac{3}{23648768} \frac{k^{10}}{m^{10}} - \frac{1}{60196864} \frac{k^{12}}{m^{12}} + \dots \right) \right) + \\ & + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu}^2 \pi_{\nu\nu}^2 \left(\frac{1}{5\pi} \left(-4 \frac{m^4}{k^4} + \frac{3}{7} \frac{m^2}{k^2} - \frac{1}{84} - \frac{1}{3696} \frac{k^2}{m^2} - \frac{1}{64064} \frac{k^4}{m^4} - \right. \right. \\ & \left. \left. - \frac{1}{768768} \frac{k^6}{m^6} - \frac{1}{7468032} \frac{k^8}{m^8} - \frac{3}{189190144} \frac{k^{10}}{m^{10}} - \frac{1}{481574912} \frac{k^{12}}{m^{12}} + \right. \right. \\ & \left. \left. + \dots \right) \right) \quad (4.558) \end{aligned}$$

$$\begin{aligned} \tilde{T}_{5,5;3D}^{\text{f,t,UV-IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{32i}{105\pi} \frac{m^3}{k^4} \right) + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(-\frac{64i}{105\pi} \frac{m^3}{k^4} \right) + \\ & + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\nu}^4 \left(\frac{1}{5\pi} \left(-\frac{8}{7} \frac{m^2}{k^2} + \frac{32}{3} \frac{m^4}{k^4} \right) \right) + \\ & + k^8 (k \cdot \epsilon)_{\mu\nu} \pi_{\mu\mu} \pi_{\mu\nu}^2 \pi_{\nu\nu} \left(\frac{32}{5\pi} \frac{m^4}{k^4} \right) + \dots \quad (4.559) \end{aligned}$$

Fermions, spin 5 x 5, dimension 4:

$$\begin{aligned} \tilde{T}_{5,5;4D}^{\text{f,t,UV}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{\pi^2} \left(\left(-\frac{23722}{4002075} + \frac{2P}{1155} \right) + \left(\frac{7748}{99225} - \frac{8P}{315} \right) \frac{m^2}{k^2} - \right. \right. \\ & \left. \left. - \left(-\frac{7073}{14700} - \frac{4P}{35} + \frac{L_0}{2} \right) \frac{m^4}{k^4} - \frac{8}{15} \frac{m^6}{k^6} + \left(\frac{19}{9} - \frac{4K}{3} \right) \frac{m^8}{k^8} + \right. \right. \end{aligned}$$

$$\begin{aligned}
& + \left(-\frac{52}{75} + \frac{16K}{5} \right) \frac{m^{10}}{k^{10}} - \left(\frac{254}{75} + \frac{8K}{5} \right) \frac{m^{12}}{k^{12}} + \dots \Bigg) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^2} \left(\left(-\frac{83338}{12006225} + \frac{8P}{3465} \right) + \left(\frac{724}{99225} - \frac{4P}{315} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(-\frac{2873}{7350} - \frac{8P}{35} + L_0 \right) \frac{m^4}{k^4} + \left(-\frac{44}{9} + \frac{8K}{3} \right) \frac{m^6}{k^6} + \left(\frac{92}{9} - \frac{32K}{3} \right) \frac{m^8}{k^8} + \\
& + \left. \left(\frac{14}{75} + \frac{88K}{5} \right) \frac{m^{10}}{k^{10}} - \left(\frac{1252}{75} + \frac{112K}{15} \right) \frac{m^{12}}{k^{12}} + \dots \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^2} \left(\left(\frac{13511}{2286900} - \frac{P}{660} \right) + \left(-\frac{9323}{66150} + \frac{4P}{105} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left(\frac{3273}{2450} - \frac{27P}{70} \right) \frac{m^4}{k^4} + \left(-\frac{8}{3} + 2K \right) \frac{m^6}{k^6} + \left(\frac{89}{24} - \frac{11K}{2} \right) \frac{m^8}{k^8} + \\
& + \left. \left(\frac{36}{25} + \frac{36K}{5} \right) \frac{m^{10}}{k^{10}} - \left(\frac{617}{100} + \frac{13K}{5} \right) \frac{m^{12}}{k^{12}} + \dots \right) \Bigg) \tag{4.560}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{\text{f,t,IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{5\pi^2} \left(\left(\frac{81}{28} - \frac{27L_0}{14} \right) \frac{m^4}{k^4} + \left(\frac{8}{63} - \frac{8L_0}{63} \right) \frac{m^2}{k^2} + \frac{2L_0}{231} - \frac{4}{9009} \frac{k^2}{m^2} - \right. \right. \\
& - \frac{1}{54054} \frac{k^4}{m^4} - \frac{1}{765765} \frac{k^6}{m^6} - \frac{1}{8314020} \frac{k^8}{m^8} - \frac{4}{305540235} \frac{k^{10}}{m^{10}} - \\
& - \left. \frac{1}{624660036} \frac{k^{12}}{m^{12}} + \dots \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\left(-\frac{81}{14} + \frac{27L_0}{7} \right) \frac{m^4}{k^4} + \left(\frac{4}{63} - \frac{4L_0}{63} \right) \frac{m^2}{k^2} + \frac{8L_0}{693} - \right. \right. \\
& - \frac{1}{1287} \frac{k^2}{m^2} - \frac{1}{27027} \frac{k^4}{m^4} - \frac{1}{353430} \frac{k^6}{m^6} - \frac{4}{14549535} \frac{k^8}{m^8} - \frac{1}{32162130} \frac{k^{10}}{m^{10}} - \\
& - \left. \frac{1}{255542742} \frac{k^{12}}{m^{12}} + \dots \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(\frac{81}{28} - \frac{27L_0}{14} \right) \frac{m^4}{k^4} + \left(-\frac{4}{21} + \frac{4L_0}{21} \right) \frac{m^2}{k^2} - \frac{L_0}{132} + \right. \right. \\
& + \frac{1}{4004} \frac{k^2}{m^2} + \frac{1}{144144} \frac{k^4}{m^4} + \frac{1}{3063060} \frac{k^6}{m^6} + \frac{1}{51731680} \frac{k^8}{m^8} + \\
& + \left. \frac{1}{814773960} \frac{k^{10}}{m^{10}} + \frac{1}{14991840864} \frac{k^{12}}{m^{12}} + \dots \right) \Bigg) \tag{4.561}
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;4D}^{\text{f,UV-IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{35\pi^2} \left(\left(-\frac{23722}{114345} + \frac{2K}{33} \right) + \left(\frac{5228}{2835} - \frac{8K}{9} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left. \left(-\frac{358}{105} + 4K \right) \frac{m^4}{k^4} \right) \Bigg) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{35\pi^2} \left(\left(-\frac{83338}{343035} + \frac{8K}{99} \right) - \left(\frac{536}{2835} + \frac{4K}{9} \right) \frac{m^2}{k^2} + \right. \right. \\
& + \left. \left(\frac{2816}{105} - 8K \right) \frac{m^4}{k^4} \right) \Bigg) +
\end{aligned}$$

$$\begin{aligned}
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(\left(\frac{13511}{457380} - \frac{K}{132} \right) + \left(-\frac{6803}{13230} + \frac{4K}{21} \right) \frac{m^2}{k^2} + \right. \right. \\
& \left. \left. + \left(\frac{3711}{980} - \frac{27K}{14} \right) \frac{m^4}{k^4} \right) \right) + \dots
\end{aligned} \tag{4.562}$$

Fermions, spin 5 x 5, dimension 5:

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{\text{f,t,UV}} &= k^{10} \pi_{\mu\nu}^5 \left(\frac{1}{\pi^2} \left(\frac{7\pi}{61440} k - \frac{\pi}{512} \frac{m^2}{k} + \frac{3\pi}{256} \frac{m^4}{k^3} - \frac{4i}{15} \frac{m^5}{k^4} - \frac{\pi}{48} \frac{m^6}{k^5} - \frac{\pi}{16} \frac{m^8}{k^7} + \right. \right. \\
& \left. \left. + \frac{512i}{945} \frac{m^9}{k^8} + \frac{3\pi}{10} \frac{m^{10}}{k^9} - \frac{4096i}{3465} \frac{m^{11}}{k^{10}} - \frac{\pi}{3} \frac{m^{12}}{k^{11}} + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{1}{\pi^2} \left(\frac{11\pi}{61440} k - \frac{\pi}{512} \frac{m^2}{k} - \frac{\pi}{256} \frac{m^4}{k^3} + \frac{8i}{15} \frac{m^5}{k^4} + \frac{7\pi}{48} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{128i}{105} \frac{m^7}{k^6} - \frac{13\pi}{16} \frac{m^8}{k^7} + \frac{4096i}{945} \frac{m^9}{k^8} + \frac{19\pi}{10} \frac{m^{10}}{k^9} - \frac{2048i}{315} \frac{m^{11}}{k^{10}} - \frac{5\pi}{3} \frac{m^{12}}{k^{11}} + \right. \right. \\
& \left. \left. + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{1}{\pi^2} \left(-\frac{13\pi}{163840} k + \frac{9\pi}{4096} \frac{m^2}{k} - \frac{51\pi}{2048} \frac{m^4}{k^3} + \frac{19\pi}{128} \frac{m^6}{k^5} - \right. \right. \\
& \left. \left. - \frac{32i}{35} \frac{m^7}{k^6} - \frac{63\pi}{128} \frac{m^8}{k^7} + \frac{704i}{315} \frac{m^9}{k^8} + \frac{69\pi}{80} \frac{m^{10}}{k^9} - \frac{1024i}{385} \frac{m^{11}}{k^{10}} - \frac{5\pi}{8} \frac{m^{12}}{k^{11}} + \right. \right. \\
& \left. \left. + \dots \right) \right)
\end{aligned} \tag{4.563}$$

$$\begin{aligned}
\tilde{T}_{5,5;5D}^{\text{f,t,IR}} &= k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{5\pi^2} \left(-\frac{36}{35} \frac{m^5}{k^4} - \frac{16}{189} \frac{m^3}{k^2} + \frac{2}{231} m - \frac{2}{9009} \frac{k^2}{m} - \frac{1}{216216} \frac{k^4}{m^3} - \right. \right. \\
& \left. \left. - \frac{1}{4084080} \frac{k^6}{m^5} - \frac{1}{53209728} \frac{k^8}{m^7} - \frac{1}{558702144} \frac{k^{10}}{m^9} - \frac{3}{15229806592} \frac{k^{12}}{m^{11}} + \right. \right. \\
& \left. \left. + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{5\pi^2} \left(\frac{72}{35} \frac{m^5}{k^4} - \frac{8}{189} \frac{m^3}{k^2} + \frac{8}{693} m - \frac{1}{2574} \frac{k^2}{m} - \frac{1}{108108} \frac{k^4}{m^3} - \right. \right. \\
& \left. \left. - \frac{1}{1884960} \frac{k^6}{m^5} - \frac{1}{23279256} \frac{k^8}{m^7} - \frac{1}{235243008} \frac{k^{10}}{m^9} - \frac{1}{2076791808} \frac{k^{12}}{m^{11}} + \right. \right. \\
& \left. \left. + \dots \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^2} \left(-\frac{36}{35} \frac{m^5}{k^4} + \frac{8}{63} \frac{m^3}{k^2} - \frac{1}{132} m + \frac{1}{8008} \frac{k^2}{m} + \frac{1}{576576} \frac{k^4}{m^3} + \right. \right. \\
& \left. \left. + \frac{1}{16336320} \frac{k^6}{m^5} + \frac{1}{331082752} \frac{k^8}{m^7} + \frac{1}{5959489536} \frac{k^{10}}{m^9} + \right. \right. \\
& \left. \left. + \frac{1}{121838452736} \frac{k^{12}}{m^{11}} + \dots \right) \right)
\end{aligned} \tag{4.564}$$

$$\tilde{T}_{5,5;5D}^{\text{f,t,UV-IR}} = k^{10} \pi_{\mu\nu}^5 \left(-\frac{32i}{525\pi^2} \frac{m^5}{k^4} \right) + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{64i}{525\pi^2} \frac{m^5}{k^4} \right) + \dots \tag{4.565}$$

Fermions, spin 5 x 5, dimension 6:

$$\tilde{T}_{5,5;6D}^{\text{f,t,UV}} = k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{3\pi^3} \left(\left(-\frac{659507}{1352701350} + \frac{2P}{15015} \right) k^2 + \left(\frac{11861}{1334025} - \frac{P}{385} \right) m^2 + \right. \right.$$

$$\begin{aligned}
& + \left(-\frac{1937}{33075} + \frac{2P}{105} \right) \frac{m^4}{k^2} + \left(-\frac{9523}{29400} - \frac{2P}{35} + \frac{L_0}{4} \right) \frac{m^6}{k^4} + \frac{1}{5} \frac{m^8}{k^6} + \\
& + \left(-\frac{83}{150} + \frac{2K}{5} \right) \frac{m^{10}}{k^8} + \left(\frac{1}{25} - \frac{4K}{5} \right) \frac{m^{12}}{k^{10}} + \dots \Bigg) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{\pi^3} \left(\left(-\frac{156833}{579729150} + \frac{P}{12870} \right) k^2 + \right. \right. \\
& + \left(\frac{41669}{12006225} - \frac{4P}{3465} \right) m^2 + \left(-\frac{181}{99225} + \frac{P}{315} \right) \frac{m^4}{k^2} - \\
& - \left(-\frac{5323}{44100} - \frac{4P}{105} + \frac{L_0}{6} \right) \frac{m^6}{k^4} + \left(\frac{19}{36} - \frac{K}{3} \right) \frac{m^8}{k^6} + \\
& + \left(-\frac{182}{225} + \frac{16K}{15} \right) \frac{m^{10}}{k^8} - \left(\frac{13}{50} + \frac{22K}{15} \right) \frac{m^{12}}{k^{10}} + \dots \Bigg) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{\pi^3} \left(\left(\frac{367291}{3607203600} - \frac{P}{40040} \right) k^2 + \right. \right. \\
& + \left(-\frac{13511}{4573800} + \frac{P}{1320} \right) m^2 + \left(\frac{9323}{264600} - \frac{P}{105} \right) \frac{m^4}{k^2} + \\
& + \left(-\frac{1091}{4900} + \frac{9P}{140} \right) \frac{m^6}{k^4} + \left(\frac{13}{48} - \frac{K}{4} \right) \frac{m^8}{k^6} + \left(-\frac{313}{1200} + \frac{11K}{20} \right) \frac{m^{10}}{k^8} - \\
& - \left(\frac{11}{50} + \frac{3K}{5} \right) \frac{m^{12}}{k^{10}} + \dots \Bigg) \quad (4.566)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;6D}^{\text{f,t,IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{5\pi^3} \left(\left(-\frac{33}{56} + \frac{9L_0}{28} \right) \frac{m^6}{k^4} + \left(-\frac{1}{21} + \frac{2L_0}{63} \right) \frac{m^4}{k^2} + \left(\frac{1}{231} - \frac{L_0}{231} \right) m^2 + \right. \right. \\
& + \frac{2L_0}{9009} k^2 - \frac{1}{108108} \frac{k^4}{m^2} - \frac{1}{3063060} \frac{k^6}{m^4} - \frac{1}{49884120} \frac{k^8}{m^6} - \\
& - \frac{1}{611080470} \frac{k^{10}}{m^8} - \frac{1}{6246600360} \frac{k^{12}}{m^{10}} - \frac{1}{56219403240} \frac{k^{14}}{m^{12}} + \dots \Bigg) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{5\pi^3} \left(\left(\frac{33}{28} - \frac{9L_0}{14} \right) \frac{m^6}{k^4} + \left(-\frac{1}{42} + \frac{L_0}{63} \right) \frac{m^4}{k^2} + \right. \right. \\
& + \left(\frac{4}{693} - \frac{4L_0}{693} \right) m^2 + \frac{L_0}{2574} k^2 - \frac{1}{54054} \frac{k^4}{m^2} - \frac{1}{1413720} \frac{k^6}{m^4} - \\
& - \frac{2}{43648605} \frac{k^8}{m^6} - \frac{1}{257297040} \frac{k^{10}}{m^8} - \frac{1}{2555427420} \frac{k^{12}}{m^{10}} - \\
& - \frac{1}{22487761296} \frac{k^{14}}{m^{12}} + \dots \Bigg) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^3} \left(\left(-\frac{33}{56} + \frac{9L_0}{28} \right) \frac{m^6}{k^4} + \left(\frac{1}{14} - \frac{L_0}{21} \right) \frac{m^4}{k^2} + \right. \right. \\
& + \left(-\frac{1}{264} + \frac{L_0}{264} \right) m^2 - \frac{L_0}{8008} k^2 + \frac{1}{288288} \frac{k^4}{m^2} + \frac{1}{12252240} \frac{k^6}{m^4} + \\
& + \frac{1}{310390080} \frac{k^8}{m^6} + \frac{1}{6518191680} \frac{k^{10}}{m^8} + \frac{1}{149918408640} \frac{k^{12}}{m^{10}} + \dots \Bigg) \quad (4.567)
\end{aligned}$$

$$\begin{aligned}
\tilde{T}_{5,5;6D}^{\text{f,UV-IR}} = & k^{10} \pi_{\mu\nu}^5 \left(\frac{i}{105\pi^3} \left(\left(-\frac{659507}{38648610} + \frac{2K}{429} \right) k^2 + \left(\frac{8396}{38115} - \frac{K}{11} \right) m^2 + \right. \right. \\
& \left. \left. + \left(-\frac{992}{945} + \frac{2K}{3} \right) \frac{m^4}{k^2} + \left(\frac{109}{105} - 2K \right) \frac{m^6}{k^4} \right) \right) + \\
& + k^{10} \pi_{\mu\mu} \pi_{\mu\nu}^3 \pi_{\nu\nu} \left(\frac{i}{15\pi^3} \left(\left(-\frac{156833}{38648610} + \frac{K}{858} \right) k^2 + \left(\frac{27809}{800415} - \frac{4K}{231} \right) m^2 + \right. \right. \\
& \left. \left. + \left(\frac{583}{13230} + \frac{K}{21} \right) \frac{m^4}{k^2} + \left(-\frac{1268}{735} + \frac{4K}{7} \right) \frac{m^6}{k^4} \right) \right) + \\
& + k^{10} \pi_{\mu\mu}^2 \pi_{\mu\nu} \pi_{\nu\nu}^2 \left(\frac{i}{5\pi^3} \left(\left(\frac{367291}{721440720} - \frac{K}{8008} \right) k^2 + \right. \right. \\
& \left. \left. + \left(-\frac{5023}{457380} + \frac{K}{264} \right) m^2 + \left(\frac{5543}{52920} - \frac{K}{21} \right) \frac{m^4}{k^2} + \right. \right. \\
& \left. \left. + \left(-\frac{1027}{1960} + \frac{9K}{28} \right) \frac{m^6}{k^4} \right) \right) + \dots
\end{aligned} \tag{4.568}$$

4.3.6 Divergences of the fermion amplitudes

Fermions, spin 0 x 2:

$$\tilde{T}_{0,2;3D}^{\text{f,nt}} \cdot k = k_\nu \left(-\frac{i}{\pi} m^2 \right) \tag{4.569}$$

$$\tilde{T}_{0,2;4D}^{\text{f,nt}} \cdot k = k_\nu \left(\frac{iL_1}{2\pi^2} m^3 \right) \tag{4.570}$$

$$\tilde{T}_{0,2;5D}^{\text{f,nt}} \cdot k = k_\nu \left(\frac{i}{3\pi^2} m^4 \right) \tag{4.571}$$

$$\tilde{T}_{0,2;6D}^{\text{f,nt}} \cdot k = k_\nu \left(-\frac{iL_2}{8\pi^3} m^5 \right) \tag{4.572}$$

Fermions, spin 0 x 4:

$$\tilde{T}_{0,4;3D}^{\text{f,nt}} \cdot k = k_\nu^3 \left(-\frac{i}{\pi} m^2 \right) + k_\nu \eta_{\nu\nu} \left(-\frac{4i}{\pi} m^4 \right) \tag{4.573}$$

$$\tilde{T}_{0,4;4D}^{\text{f,nt}} \cdot k = k_\nu^3 \left(\frac{iL_1}{2\pi^2} m^3 \right) + k_\nu \eta_{\nu\nu} \left(\frac{3iL_2}{2\pi^2} m^5 \right) \tag{4.574}$$

$$\tilde{T}_{0,4;5D}^{\text{f,nt}} \cdot k = k_\nu^3 \left(\frac{i}{3\pi^2} m^4 \right) + k_\nu \eta_{\nu\nu} \left(\frac{4i}{5\pi^2} m^6 \right) \tag{4.575}$$

$$\tilde{T}_{0,4;6D}^{\text{f,nt}} \cdot k = k_\nu^3 \left(-\frac{iL_2}{8\pi^3} m^5 \right) + k_\nu \eta_{\nu\nu} \left(-\frac{iL_3}{4\pi^3} m^7 \right) \tag{4.576}$$

Fermions, spin 1 x 1:

$$k \cdot \tilde{T}_{1,1;3D}^{\text{f,nt}} = 0 \quad (4.577)$$

$$k \cdot \tilde{T}_{1,1;4D}^{\text{f,nt}} = 0 \quad (4.578)$$

$$k \cdot \tilde{T}_{1,1;5D}^{\text{f,nt}} = 0 \quad (4.579)$$

$$k \cdot \tilde{T}_{1,1;6D}^{\text{f,nt}} = 0 \quad (4.580)$$

Fermions, spin 1 x 3:

$$k \cdot \tilde{T}_{1,3;3D}^{\text{f,nt}} = k_\nu \eta_{\nu\nu} \left(-\frac{4i}{3\pi} m^3 \right) \quad (4.581)$$

$$\tilde{T}_{1,3;3D}^{\text{f,nt}} \cdot k = k_\mu \eta_{\mu\nu} \left(-\frac{4i}{9\pi} m^3 \right) + k_\nu \eta_{\mu\nu} \left(-\frac{8i}{9\pi} m^3 \right) + k_\nu (k \cdot \epsilon)_{\mu\nu} \left(-\frac{2}{3\pi} m^2 \right) \quad (4.582)$$

$$k \cdot \tilde{T}_{1,3;4D}^{\text{f,nt}} = k_\nu \eta_{\nu\nu} \left(\frac{iL_2}{2\pi^2} m^4 \right) \quad (4.583)$$

$$\tilde{T}_{1,3;4D}^{\text{f,nt}} \cdot k = k_\mu \eta_{\mu\nu} \left(\frac{iL_2}{6\pi^2} m^4 \right) + k_\nu \eta_{\mu\nu} \left(\frac{iL_2}{3\pi^2} m^4 \right) \quad (4.584)$$

$$k \cdot \tilde{T}_{1,3;5D}^{\text{f,nt}} = k_\nu \eta_{\nu\nu} \left(\frac{4i}{15\pi^2} m^5 \right) \quad (4.585)$$

$$\tilde{T}_{1,3;5D}^{\text{f,nt}} \cdot k = k_\mu \eta_{\mu\nu} \left(\frac{4i}{45\pi^2} m^5 \right) + k_\nu \eta_{\mu\nu} \left(\frac{8i}{45\pi^2} m^5 \right) \quad (4.586)$$

$$k \cdot \tilde{T}_{1,3;6D}^{\text{f,nt}} = k_\nu \eta_{\nu\nu} \left(-\frac{iL_3}{12\pi^3} m^6 \right) \quad (4.587)$$

$$\tilde{T}_{1,3;6D}^{\text{f,nt}} \cdot k = k_\mu \eta_{\mu\nu} \left(-\frac{iL_3}{36\pi^3} m^6 \right) + k_\nu \eta_{\mu\nu} \left(-\frac{iL_3}{18\pi^3} m^6 \right) \quad (4.588)$$

Fermions, spin 1 x 5:

$$k \cdot \tilde{T}_{1,5;3D}^{\text{f,nt}} = k_\nu^3 \eta_{\nu\nu} \left(-\frac{8i}{3\pi} m^3 \right) + k_\nu \eta_{\nu\nu}^2 \left(-\frac{32i}{5\pi} m^5 \right) \quad (4.589)$$

$$\tilde{T}_{1,5;3D}^{\text{f,nt}} \cdot k = k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{8i}{5\pi} m^3 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{16i}{15\pi} m^3 \right) + k_\mu \eta_{\nu\nu}^2 \left(-\frac{32i}{25\pi} m^5 \right) +$$

$$\begin{aligned}
& + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{128i}{25\pi} m^5 \right) + k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{4}{5\pi} m^2 \right) + \\
& + k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{16}{5\pi} m^4 \right)
\end{aligned} \tag{4.590}$$

$$k \cdot \tilde{T}_{1,5;4D}^{\text{f,nt}} = k_\nu^3 \eta_{\nu\nu} \left(\frac{iL_2}{\pi^2} m^4 \right) + k_\nu \eta_{\nu\nu}^2 \left(\frac{2iL_3}{\pi^2} m^6 \right) \tag{4.591}$$

$$\begin{aligned}
\tilde{T}_{1,5;4D}^{\text{f,nt}} \cdot k & = k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{3iL_2}{5\pi^2} m^4 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{2iL_2}{5\pi^2} m^4 \right) + k_\mu \eta_{\nu\nu}^2 \left(\frac{2iL_3}{5\pi^2} m^6 \right) + \\
& + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{8iL_3}{5\pi^2} m^6 \right)
\end{aligned} \tag{4.592}$$

$$k \cdot \tilde{T}_{1,5;5D}^{\text{f,nt}} = k_\nu^3 \eta_{\nu\nu} \left(\frac{8i}{15\pi^2} m^5 \right) + k_\nu \eta_{\nu\nu}^2 \left(\frac{32i}{35\pi^2} m^7 \right) \tag{4.593}$$

$$\begin{aligned}
\tilde{T}_{1,5;5D}^{\text{f,nt}} \cdot k & = k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{8i}{25\pi^2} m^5 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{16i}{75\pi^2} m^5 \right) + k_\mu \eta_{\nu\nu}^2 \left(\frac{32i}{175\pi^2} m^7 \right) + \\
& + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{128i}{175\pi^2} m^7 \right)
\end{aligned} \tag{4.594}$$

$$k \cdot \tilde{T}_{1,5;6D}^{\text{f,nt}} = k_\nu^3 \eta_{\nu\nu} \left(-\frac{iL_3}{6\pi^3} m^6 \right) + k_\nu \eta_{\nu\nu}^2 \left(-\frac{iL_4}{4\pi^3} m^8 \right) \tag{4.595}$$

$$\begin{aligned}
\tilde{T}_{1,5;6D}^{\text{f,nt}} \cdot k & = k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{iL_3}{10\pi^3} m^6 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{iL_3}{15\pi^3} m^6 \right) + k_\mu \eta_{\nu\nu}^2 \left(-\frac{iL_4}{20\pi^3} m^8 \right) + \\
& + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{iL_4}{5\pi^3} m^8 \right)
\end{aligned} \tag{4.596}$$

Fermions, spin 2 x 2:

$$k \cdot \tilde{T}_{2,2;3D}^{\text{f,nt}} = (k_\nu \eta_{\mu\nu} + k_\mu \eta_{\nu\nu}) \left(-\frac{2i}{3\pi} m^3 \right) + k_\nu (k \cdot \epsilon)_{\mu\nu} \left(-\frac{1}{2\pi} m^2 \right) \tag{4.597}$$

$$k \cdot \tilde{T}_{2,2;4D}^{\text{f,nt}} = (k_\nu \eta_{\mu\nu} + k_\mu \eta_{\nu\nu}) \left(\frac{iL_2}{4\pi^2} m^4 \right) \tag{4.598}$$

$$k \cdot \tilde{T}_{2,2;5D}^{\text{f,nt}} = (k_\nu \eta_{\mu\nu} + k_\mu \eta_{\nu\nu}) \left(\frac{2i}{15\pi^2} m^5 \right) \tag{4.599}$$

$$k \cdot \tilde{T}_{2,2;6D}^{\text{f,nt}} = (k_\nu \eta_{\mu\nu} + k_\mu \eta_{\nu\nu}) \left(-\frac{iL_3}{24\pi^3} m^6 \right) \tag{4.600}$$

Fermions, spin 2 x 4:

$$\begin{aligned}
k \cdot \tilde{T}_{2,4;3D}^{\text{f,nt}} &= k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{2i}{\pi} m^3 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{2i}{3\pi} m^3 \right) + k_\mu \eta_{\nu\nu}^2 \left(-\frac{8i}{5\pi} m^5 \right) + \\
&\quad + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{24i}{5\pi} m^5 \right) + k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{1}{2\pi} m^2 \right) + k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{2}{\pi} m^4 \right)
\end{aligned} \tag{4.601}$$

$$\begin{aligned}
\tilde{T}_{2,4;3D}^{\text{f,nt}} \cdot k &= k_\nu^3 \eta_{\mu\mu} \left(-\frac{2i}{3\pi} m^3 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu} + k_\mu^2 k_\nu \eta_{\nu\nu}) \left(-\frac{i}{\pi} m^3 \right) + \\
&\quad + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{8i}{5\pi} m^5 \right) + (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{12i}{5\pi} m^5 \right) + \\
&\quad + k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{3}{4\pi} m^2 \right) + k_\mu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{1}{\pi} m^4 \right) + \\
&\quad + k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{2}{\pi} m^4 \right)
\end{aligned} \tag{4.602}$$

$$\begin{aligned}
k \cdot \tilde{T}_{2,4;4D}^{\text{f,nt}} &= k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{3iL_2}{4\pi^2} m^4 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{iL_2}{4\pi^2} m^4 \right) + k_\mu \eta_{\nu\nu}^2 \left(\frac{iL_3}{2\pi^2} m^6 \right) + \\
&\quad + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{3iL_3}{2\pi^2} m^6 \right)
\end{aligned} \tag{4.603}$$

$$\begin{aligned}
\tilde{T}_{2,4;4D}^{\text{f,nt}} \cdot k &= k_\nu^3 \eta_{\mu\mu} \left(\frac{iL_2}{4\pi^2} m^4 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu} + k_\mu^2 k_\nu \eta_{\nu\nu}) \left(\frac{3iL_2}{8\pi^2} m^4 \right) + \\
&\quad + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{iL_3}{2\pi^2} m^6 \right) + (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{3iL_3}{4\pi^2} m^6 \right)
\end{aligned} \tag{4.604}$$

$$\begin{aligned}
k \cdot \tilde{T}_{2,4;5D}^{\text{f,nt}} &= k_\mu k_\nu^2 \eta_{\nu\nu} \left(\frac{2i}{5\pi^2} m^5 \right) + k_\nu^3 \eta_{\mu\nu} \left(\frac{2i}{15\pi^2} m^5 \right) + k_\mu \eta_{\nu\nu}^2 \left(\frac{8i}{35\pi^2} m^7 \right) + \\
&\quad + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{24i}{35\pi^2} m^7 \right)
\end{aligned} \tag{4.605}$$

$$\begin{aligned}
\tilde{T}_{2,4;5D}^{\text{f,nt}} \cdot k &= k_\nu^3 \eta_{\mu\mu} \left(\frac{2i}{15\pi^2} m^5 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu} + k_\mu^2 k_\nu \eta_{\nu\nu}) \left(\frac{i}{5\pi^2} m^5 \right) + \\
&\quad + k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{8i}{35\pi^2} m^7 \right) + (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(\frac{12i}{35\pi^2} m^7 \right)
\end{aligned} \tag{4.606}$$

$$\begin{aligned}
k \cdot \tilde{T}_{2,4;6D}^{\text{f,nt}} &= k_\mu k_\nu^2 \eta_{\nu\nu} \left(-\frac{iL_3}{8\pi^3} m^6 \right) + k_\nu^3 \eta_{\mu\nu} \left(-\frac{iL_3}{24\pi^3} m^6 \right) + k_\mu \eta_{\nu\nu}^2 \left(-\frac{iL_4}{16\pi^3} m^8 \right) + \\
&\quad + k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{3iL_4}{16\pi^3} m^8 \right)
\end{aligned} \tag{4.607}$$

$$\begin{aligned}\tilde{T}_{2,4;6D}^{\text{f,nt}} \cdot k &= k_\nu^3 \eta_{\mu\mu} \left(-\frac{iL_3}{24\pi^3} m^6 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu} + k_\mu^2 k_\nu \eta_{\nu\nu}) \left(-\frac{iL_3}{16\pi^3} m^6 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_4}{16\pi^3} m^8 \right) + (k_\nu \eta_{\mu\nu}^2 + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{3iL_4}{32\pi^3} m^8 \right)\end{aligned}\quad (4.608)$$

Fermions, spin 3 x 3:

$$\begin{aligned}k \cdot \tilde{T}_{3,3;3D}^{\text{f,nt}} &= k_\nu^3 \eta_{\mu\mu} \left(-\frac{4i}{9\pi} m^3 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(-\frac{4i}{3\pi} m^3 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{8i}{9\pi} m^3 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{64i}{45\pi} m^5 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{128i}{45\pi} m^5 \right) + k_\nu \eta_{\mu\nu}^2 \left(-\frac{32i}{15\pi} m^5 \right) + \\ &+ k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{2}{3\pi} m^2 \right) + k_\mu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{8}{9\pi} m^4 \right) + \\ &+ k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{16}{9\pi} m^4 \right)\end{aligned}\quad (4.609)$$

$$\begin{aligned}k \cdot \tilde{T}_{3,3;4D}^{\text{f,nt}} &= k_\nu^3 \eta_{\mu\mu} \left(\frac{iL_2}{6\pi^2} m^4 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(\frac{iL_2}{2\pi^2} m^4 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \left(\frac{iL_2}{3\pi^2} m^4 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{4iL_3}{9\pi^2} m^6 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{8iL_3}{9\pi^2} m^6 \right) + k_\nu \eta_{\mu\nu}^2 \left(\frac{2iL_3}{3\pi^2} m^6 \right)\end{aligned}\quad (4.610)$$

$$\begin{aligned}k \cdot \tilde{T}_{3,3;5D}^{\text{f,nt}} &= k_\nu^3 \eta_{\mu\mu} \left(\frac{4i}{45\pi^2} m^5 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(\frac{4i}{15\pi^2} m^5 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \left(\frac{8i}{45\pi^2} m^5 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{64i}{315\pi^2} m^7 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{128i}{315\pi^2} m^7 \right) + k_\nu \eta_{\mu\nu}^2 \left(\frac{32i}{105\pi^2} m^7 \right)\end{aligned}\quad (4.611)$$

$$\begin{aligned}k \cdot \tilde{T}_{3,3;6D}^{\text{f,nt}} &= k_\nu^3 \eta_{\mu\mu} \left(-\frac{iL_3}{36\pi^3} m^6 \right) + k_\mu^2 k_\nu \eta_{\nu\nu} \left(-\frac{iL_3}{12\pi^3} m^6 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \left(-\frac{iL_3}{18\pi^3} m^6 \right) + \\ &+ k_\nu \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{iL_4}{18\pi^3} m^8 \right) + k_\mu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{iL_4}{9\pi^3} m^8 \right) + k_\nu \eta_{\mu\nu}^2 \left(-\frac{iL_4}{12\pi^3} m^8 \right)\end{aligned}\quad (4.612)$$

Fermions, spin 3 x 5:

$$\begin{aligned}k \cdot \tilde{T}_{3,5;3D}^{\text{f,nt}} &= k_\nu^5 \eta_{\mu\mu} \left(-\frac{4i}{9\pi} m^3 \right) + k_\mu^2 k_\nu^3 \eta_{\nu\nu} \left(-\frac{8i}{3\pi} m^3 \right) + k_\mu k_\nu^4 \eta_{\mu\nu} \left(-\frac{8i}{9\pi} m^3 \right) + \\ &+ k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(-\frac{32i}{5\pi} m^5 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{256i}{15\pi} m^5 \right) + \\ &+ (k_\nu^3 \eta_{\mu\nu}^2 + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{64i}{15\pi} m^5 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{64i}{15\pi} m^7 \right) + \\ &+ k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{128i}{15\pi} m^7 \right) + k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{512i}{35\pi} m^7 \right) + \\ &+ k_\mu k_\nu^4 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{2}{3\pi} m^2 \right) + k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{16}{3\pi} m^4 \right) +\end{aligned}$$

$$\begin{aligned}
& + k_\nu^3(k \cdot \epsilon)_{\mu\nu}\eta_{\mu\nu} \left(-\frac{32}{9\pi}m^4 \right) + k_\mu(k \cdot \epsilon)_{\mu\nu}\eta_{\nu\nu}^2 \left(-\frac{32}{15\pi}m^6 \right) + \\
& + k_\nu(k \cdot \epsilon)_{\mu\nu}\eta_{\mu\nu}\eta_{\nu\nu} \left(-\frac{128}{15\pi}m^6 \right)
\end{aligned} \tag{4.613}$$

$$\begin{aligned}
\tilde{T}_{3,5;3D}^{\text{f,nt}} \cdot k & = k_\mu k_\nu^4 \eta_{\mu\mu} \left(-\frac{4i}{3\pi}m^3 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{8i}{5\pi}m^3 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(-\frac{16i}{15\pi}m^3 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{32i}{25\pi}m^5 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{128i}{25\pi}m^5 \right) + \\
& + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{256i}{25\pi}m^5 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{192i}{25\pi}m^5 \right) + \\
& + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{64i}{25\pi}m^7 \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{256i}{25\pi}m^7 \right) + \\
& + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{1536i}{175\pi}m^7 \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{1024i}{175\pi}m^7 \right) + \\
& + k_\mu^2 k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{4}{5\pi}m^2 \right) + k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \left(-\frac{16}{15\pi}m^4 \right) + \\
& + k_\mu^2 k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{16}{5\pi}m^4 \right) + k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{32}{5\pi}m^4 \right) + \\
& + k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{64}{25\pi}m^6 \right) + \\
& + (k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 + k_\mu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{128}{25\pi}m^6 \right)
\end{aligned} \tag{4.614}$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;4D}^{\text{f,nt}} & = k_\nu^5 \eta_{\mu\mu} \left(\frac{iL_2}{6\pi^2}m^4 \right) + k_\mu^2 k_\nu^3 \eta_{\nu\nu} \left(\frac{iL_2}{\pi^2}m^4 \right) + k_\mu k_\nu^4 \eta_{\mu\nu} \left(\frac{iL_2}{3\pi^2}m^4 \right) + \\
& + k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(\frac{2iL_3}{\pi^2}m^6 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{16iL_3}{3\pi^2}m^6 \right) + \\
& + (k_\nu^3 \eta_{\mu\nu}^2 + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{4iL_3}{3\pi^2}m^6 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{7iL_4}{6\pi^2}m^8 \right) + \\
& + k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{7iL_4}{3\pi^2}m^8 \right) + k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{4iL_4}{\pi^2}m^8 \right)
\end{aligned} \tag{4.615}$$

$$\begin{aligned}
\tilde{T}_{3,5;4D}^{\text{f,nt}} \cdot k & = k_\mu k_\nu^4 \eta_{\mu\mu} \left(\frac{iL_2}{2\pi^2}m^4 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{3iL_2}{5\pi^2}m^4 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(\frac{2iL_2}{5\pi^2}m^4 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{2iL_3}{5\pi^2}m^6 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{8iL_3}{5\pi^2}m^6 \right) + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{16iL_3}{5\pi^2}m^6 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{12iL_3}{5\pi^2}m^6 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{7iL_4}{10\pi^2}m^8 \right) + \\
& + k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{14iL_4}{5\pi^2}m^8 \right) + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{12iL_4}{5\pi^2}m^8 \right) + k_\nu \eta_{\mu\nu}^3 \left(\frac{8iL_4}{5\pi^2}m^8 \right)
\end{aligned} \tag{4.616}$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;5D}^{\text{f,nt}} &= k_\nu^5 \eta_{\mu\mu} \left(\frac{4i}{45\pi^2} m^5 \right) + k_\mu^2 k_\nu^3 \eta_{\nu\nu} \left(\frac{8i}{15\pi^2} m^5 \right) + k_\mu k_\nu^4 \eta_{\mu\nu} \left(\frac{8i}{45\pi^2} m^5 \right) + \\
&+ k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(\frac{32i}{35\pi^2} m^7 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{256i}{105\pi^2} m^7 \right) + \\
&+ (k_\nu^3 \eta_{\mu\nu}^2 + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{64i}{105\pi^2} m^7 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{64i}{135\pi^2} m^9 \right) + \\
&+ k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{128i}{135\pi^2} m^9 \right) + k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{512i}{315\pi^2} m^9 \right)
\end{aligned} \tag{4.617}$$

$$\begin{aligned}
\tilde{T}_{3,5;5D}^{\text{f,nt}} \cdot k &= k_\mu k_\nu^4 \eta_{\mu\mu} \left(\frac{4i}{15\pi^2} m^5 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{8i}{25\pi^2} m^5 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(\frac{16i}{75\pi^2} m^5 \right) + \\
&+ k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{32i}{175\pi^2} m^7 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{128i}{175\pi^2} m^7 \right) + \\
&+ k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{256i}{175\pi^2} m^7 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{192i}{175\pi^2} m^7 \right) + \\
&+ k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{64i}{225\pi^2} m^9 \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{256i}{225\pi^2} m^9 \right) + \\
&+ k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{512i}{525\pi^2} m^9 \right) + k_\nu \eta_{\mu\nu}^3 \left(\frac{1024i}{1575\pi^2} m^9 \right)
\end{aligned} \tag{4.618}$$

$$\begin{aligned}
k \cdot \tilde{T}_{3,5;6D}^{\text{f,nt}} &= k_\nu^5 \eta_{\mu\mu} \left(-\frac{iL_3}{36\pi^3} m^6 \right) + k_\mu^2 k_\nu^3 \eta_{\nu\nu} \left(-\frac{iL_3}{6\pi^3} m^6 \right) + k_\mu k_\nu^4 \eta_{\mu\nu} \left(-\frac{iL_3}{18\pi^3} m^6 \right) + \\
&+ k_\mu^2 k_\nu \eta_{\nu\nu}^2 \left(-\frac{iL_4}{4\pi^3} m^8 \right) + k_\mu k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{2iL_4}{3\pi^3} m^8 \right) + \\
&+ (k_\nu^3 \eta_{\mu\nu}^2 + k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{iL_4}{6\pi^3} m^8 \right) + k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{7iL_5}{60\pi^3} m^{10} \right) + \\
&+ k_\mu \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{7iL_5}{30\pi^3} m^{10} \right) + k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{2iL_5}{5\pi^3} m^{10} \right)
\end{aligned} \tag{4.619}$$

$$\begin{aligned}
\tilde{T}_{3,5;6D}^{\text{f,nt}} \cdot k &= k_\mu k_\nu^4 \eta_{\mu\mu} \left(-\frac{iL_3}{12\pi^3} m^6 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{iL_3}{10\pi^3} m^6 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\nu} \left(-\frac{iL_3}{15\pi^3} m^6 \right) + \\
&+ k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{iL_4}{20\pi^3} m^8 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{iL_4}{5\pi^3} m^8 \right) + \\
&+ k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{2iL_4}{5\pi^3} m^8 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{3iL_4}{10\pi^3} m^8 \right) + \\
&+ k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{7iL_5}{100\pi^3} m^{10} \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{7iL_5}{25\pi^3} m^{10} \right) + \\
&+ k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{6iL_5}{25\pi^3} m^{10} \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{4iL_5}{25\pi^3} m^{10} \right)
\end{aligned} \tag{4.620}$$

Fermions, spin 4 x 4:

$$k \cdot \tilde{T}_{4,4;3D}^{\text{f,nt}} = (k_\mu k_\nu^4 \eta_{\mu\mu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}) \left(-\frac{i}{\pi} m^3 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{2i}{\pi} m^3 \right) + k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{8i}{5\pi} m^5 \right) +$$

$$\begin{aligned}
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{4i}{\pi} m^5 \right) + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{12i}{\pi} m^5 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{36i}{5\pi} m^5 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{96i}{35\pi} m^7 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{48i}{5\pi} m^7 \right) + k_\nu \eta_{\mu\nu}^3 \left(-\frac{192i}{35\pi} m^7 \right) + \\
& + k_\mu^2 k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{3}{4\pi} m^2 \right) + k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \left(-\frac{1}{\pi} m^4 \right) + \\
& + k_\mu^2 k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{3}{\pi} m^4 \right) + k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{6}{\pi} m^4 \right) + \\
& + k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{12}{5\pi} m^6 \right) + \\
& + (k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 + k_\mu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{24}{5\pi} m^6 \right)
\end{aligned} \tag{4.621}$$

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;4D}^{\text{f,nt}} & = (k_\mu k_\nu^4 \eta_{\mu\mu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}) \left(\frac{3iL_2}{8\pi^2} m^4 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{3iL_2}{4\pi^2} m^4 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{iL_3}{2\pi^2} m^6 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{5iL_3}{4\pi^2} m^6 \right) + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{15iL_3}{4\pi^2} m^6 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{9iL_3}{4\pi^2} m^6 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{3iL_4}{4\pi^2} m^8 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{21iL_4}{8\pi^2} m^8 \right) + k_\nu \eta_{\mu\nu}^3 \left(\frac{3iL_4}{2\pi^2} m^8 \right)
\end{aligned} \tag{4.622}$$

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;5D}^{\text{f,nt}} & = (k_\mu k_\nu^4 \eta_{\mu\mu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}) \left(\frac{i}{5\pi^2} m^5 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(\frac{2i}{5\pi^2} m^5 \right) + k_\mu^3 \eta_{\nu\nu}^2 \left(\frac{8i}{35\pi^2} m^7 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(\frac{4i}{7\pi^2} m^7 \right) + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{12i}{7\pi^2} m^7 \right) + \\
& + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(\frac{36i}{35\pi^2} m^7 \right) + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{32i}{105\pi^2} m^9 \right) + \\
& + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(\frac{16i}{15\pi^2} m^9 \right) + k_\nu \eta_{\mu\nu}^3 \left(\frac{64i}{105\pi^2} m^9 \right)
\end{aligned} \tag{4.623}$$

$$\begin{aligned}
k \cdot \tilde{T}_{4,4;6D}^{\text{f,nt}} & = (k_\mu k_\nu^4 \eta_{\mu\mu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}) \left(-\frac{iL_3}{16\pi^3} m^6 \right) + k_\mu^3 k_\nu^2 \eta_{\nu\nu} \left(-\frac{iL_3}{8\pi^3} m^6 \right) + \\
& + k_\mu^3 \eta_{\nu\nu}^2 \left(-\frac{iL_4}{16\pi^3} m^8 \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{5iL_4}{32\pi^3} m^8 \right) + \\
& + k_\mu^2 k_\nu \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{15iL_4}{32\pi^3} m^8 \right) + (k_\mu k_\nu^2 \eta_{\mu\nu}^2 + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\nu\nu}) \left(-\frac{9iL_4}{32\pi^3} m^8 \right) + \\
& + k_\mu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{3iL_5}{40\pi^3} m^{10} \right) + (k_\nu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{21iL_5}{80\pi^3} m^{10} \right) + \\
& + k_\nu \eta_{\mu\nu}^3 \left(-\frac{3iL_5}{20\pi^3} m^{10} \right)
\end{aligned} \tag{4.624}$$

Fermions, spin 5 x 5:

$$\begin{aligned}
k \cdot \tilde{T}_{5,5;3D}^{\text{f,nt}} = & k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(-\frac{8i}{5\pi} m^3 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(-\frac{8i}{3\pi} m^3 \right) + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(-\frac{16i}{15\pi} m^3 \right) + \\
& + k_\nu^5 \eta_{\mu\mu}^2 \left(-\frac{32i}{25\pi} m^5 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{512i}{25\pi} m^5 \right) + k_\mu^4 k_\nu \eta_{\nu\nu}^2 \left(-\frac{32i}{5\pi} m^5 \right) + \\
& + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2) \left(-\frac{384i}{25\pi} m^5 \right) + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{768i}{25\pi} m^5 \right) + \\
& + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(-\frac{1408i}{175\pi} m^7 \right) + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{4224i}{175\pi} m^7 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{13824i}{175\pi} m^7 \right) + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{2816i}{175\pi} m^7 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(-\frac{4096i}{175\pi} m^7 \right) + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{12288i}{175\pi} m^7 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(-\frac{6144i}{175\pi} m^7 \right) + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(-\frac{1024i}{175\pi} m^9 \right) + \\
& + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{4096i}{175\pi} m^9 \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{22528i}{525\pi} m^9 \right) + \\
& + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(-\frac{45056i}{1575\pi} m^9 \right) + k_\nu \eta_{\mu\nu}^4 \left(-\frac{4096i}{315\pi} m^9 \right) + \\
& + k_\mu^3 k_\nu^4 (k \cdot \epsilon)_{\mu\nu} \left(-\frac{4}{5\pi} m^2 \right) + k_\mu k_\nu^4 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \left(-\frac{16}{5\pi} m^4 \right) + \\
& + k_\mu^3 k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu} \left(-\frac{32}{5\pi} m^4 \right) + k_\mu^2 k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \left(-\frac{64}{5\pi} m^4 \right) + \\
& + k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{384}{25\pi} m^6 \right) + k_\mu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{64}{25\pi} m^6 \right) + \\
& + k_\nu^3 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu} \left(-\frac{256}{25\pi} m^6 \right) + \\
& + (k_\mu k_\nu^2 (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 + k_\mu^2 k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu} \eta_{\nu\nu}) \left(-\frac{768}{25\pi} m^6 \right) + \\
& + k_\mu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{768}{175\pi} m^8 \right) + \\
& + (k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} + k_\mu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^2 \eta_{\nu\nu}) \left(-\frac{3072}{175\pi} m^8 \right) + \\
& + k_\nu (k \cdot \epsilon)_{\mu\nu} \eta_{\mu\nu}^3 \left(-\frac{2048}{175\pi} m^8 \right)
\end{aligned} \tag{4.625}$$

$$\begin{aligned}
k \cdot \tilde{T}_{5,5;4D}^{\text{f,nt}} = & k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(\frac{3iL_2}{5\pi^2} m^4 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(\frac{iL_2}{\pi^2} m^4 \right) + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(\frac{2iL_2}{5\pi^2} m^4 \right) + \\
& + k_\nu^5 \eta_{\mu\mu}^2 \left(\frac{2iL_3}{5\pi^2} m^6 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{32iL_3}{5\pi^2} m^6 \right) + k_\mu^4 k_\nu \eta_{\nu\nu}^2 \left(\frac{2iL_3}{\pi^2} m^6 \right) + \\
& + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2) \left(\frac{24iL_3}{5\pi^2} m^6 \right) + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{48iL_3}{5\pi^2} m^6 \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(\frac{11iL_4}{5\pi^2} m^8 \right) + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{33iL_4}{5\pi^2} m^8 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{108iL_4}{5\pi^2} m^8 \right) + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{22iL_4}{5\pi^2} m^8 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(\frac{32iL_4}{5\pi^2} m^8 \right) + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{96iL_4}{5\pi^2} m^8 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{48iL_4}{5\pi^2} m^8 \right) + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{36iL_5}{25\pi^2} m^{10} \right) + \\
& + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{144iL_5}{25\pi^2} m^{10} \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{264iL_5}{25\pi^2} m^{10} \right) + \\
& + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{176iL_5}{25\pi^2} m^{10} \right) + k_\nu \eta_{\mu\nu}^4 \left(\frac{16iL_5}{5\pi^2} m^{10} \right)
\end{aligned} \tag{4.626}$$

$$\begin{aligned}
k \cdot \tilde{T}_{5,5;5D}^{\text{f,nt}} &= k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(\frac{8i}{25\pi^2} m^5 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(\frac{8i}{15\pi^2} m^5 \right) + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(\frac{16i}{75\pi^2} m^5 \right) + \\
& + k_\nu^5 \eta_{\mu\mu}^2 \left(\frac{32i}{175\pi^2} m^7 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(\frac{512i}{175\pi^2} m^7 \right) + k_\mu^4 k_\nu \eta_{\nu\nu}^2 \left(\frac{32i}{35\pi^2} m^7 \right) + \\
& + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2) \left(\frac{384i}{175\pi^2} m^7 \right) + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{768i}{175\pi^2} m^7 \right) + \\
& + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(\frac{1408i}{1575\pi^2} m^9 \right) + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(\frac{1408i}{525\pi^2} m^9 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(\frac{1536i}{175\pi^2} m^9 \right) + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{2816i}{1575\pi^2} m^9 \right) + \\
& + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(\frac{4096i}{1575\pi^2} m^9 \right) + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{4096i}{525\pi^2} m^9 \right) + \\
& + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(\frac{2048i}{525\pi^2} m^9 \right) + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(\frac{1024i}{1925\pi^2} m^{11} \right) + \\
& + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(\frac{4096i}{1925\pi^2} m^{11} \right) + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(\frac{2048i}{525\pi^2} m^{11} \right) + \\
& + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(\frac{4096i}{1575\pi^2} m^{11} \right) + k_\nu \eta_{\mu\nu}^4 \left(\frac{4096i}{3465\pi^2} m^{11} \right)
\end{aligned} \tag{4.627}$$

$$\begin{aligned}
k \cdot \tilde{T}_{5,5;6D}^{\text{f,nt}} &= k_\mu^2 k_\nu^5 \eta_{\mu\mu} \left(-\frac{iL_3}{10\pi^3} m^6 \right) + k_\mu^4 k_\nu^3 \eta_{\nu\nu} \left(-\frac{iL_3}{6\pi^3} m^6 \right) + k_\mu^3 k_\nu^4 \eta_{\mu\nu} \left(-\frac{iL_3}{15\pi^3} m^6 \right) + \\
& + k_\nu^5 \eta_{\mu\mu}^2 \left(-\frac{iL_4}{20\pi^3} m^8 \right) + k_\mu^2 k_\nu^3 \eta_{\mu\mu} \eta_{\nu\nu} \left(-\frac{4iL_4}{5\pi^3} m^8 \right) + \\
& + k_\mu^4 k_\nu \eta_{\nu\nu}^2 \left(-\frac{iL_4}{4\pi^3} m^8 \right) + (k_\mu k_\nu^4 \eta_{\mu\mu} \eta_{\mu\nu} + k_\mu^2 k_\nu^3 \eta_{\mu\nu}^2) \left(-\frac{3iL_4}{5\pi^3} m^8 \right) + \\
& + k_\mu^3 k_\nu^2 \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{6iL_4}{5\pi^3} m^8 \right) + k_\nu^3 \eta_{\mu\mu}^2 \eta_{\nu\nu} \left(-\frac{11iL_5}{50\pi^3} m^{10} \right) + \\
& + k_\mu^2 k_\nu \eta_{\mu\mu} \eta_{\nu\nu}^2 \left(-\frac{33iL_5}{50\pi^3} m^{10} \right) + k_\mu k_\nu^2 \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu} \left(-\frac{54iL_5}{25\pi^3} m^{10} \right) +
\end{aligned}$$

$$\begin{aligned}
& + k_\mu^3 \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{11iL_5}{25\pi^3} m^{10} \right) + k_\nu^3 \eta_{\mu\mu} \eta_{\mu\nu}^2 \left(-\frac{16iL_5}{25\pi^3} m^{10} \right) + \\
& + k_\mu^2 k_\nu \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{48iL_5}{25\pi^3} m^{10} \right) + k_\mu k_\nu^2 \eta_{\mu\nu}^3 \left(-\frac{24iL_5}{25\pi^3} m^{10} \right) + \\
& + k_\nu \eta_{\mu\mu}^2 \eta_{\nu\nu}^2 \left(-\frac{3iL_6}{25\pi^3} m^{12} \right) + k_\mu \eta_{\mu\mu} \eta_{\mu\nu} \eta_{\nu\nu}^2 \left(-\frac{12iL_6}{25\pi^3} m^{12} \right) + \\
& + k_\nu \eta_{\mu\mu} \eta_{\mu\nu}^2 \eta_{\nu\nu} \left(-\frac{22iL_6}{25\pi^3} m^{12} \right) + k_\mu \eta_{\mu\nu}^3 \eta_{\nu\nu} \left(-\frac{44iL_6}{75\pi^3} m^{12} \right) + \\
& + k_\nu \eta_{\mu\nu}^4 \left(-\frac{4iL_6}{15\pi^3} m^{12} \right)
\end{aligned} \tag{4.628}$$