Supplementary material: Indirect excitons in van der Waals heterostructures at room temperature

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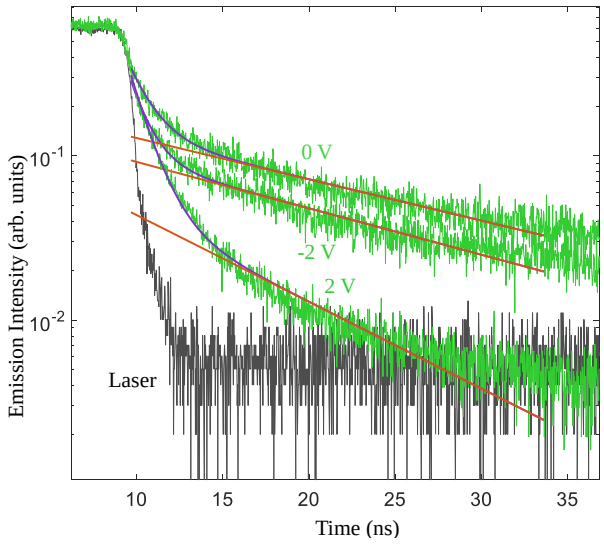
Supplementary materials present kinetics at different V_g and low-temperature spectra.



Supplementary Figure 1: Emission kinetics at energies of 1.46–1.65 eV corresponding to the IX spectral range (green) at gate voltages $V_g = -2, 0$, and 2 V at $T = 300$ K. Double exponential fits (blue) and their slower components (red) corresponding to long lifetimes presented in Fig. 3 insert are shown. The laser excitation (black) has a pulse duration of 10 ns and a period of 40 ns.

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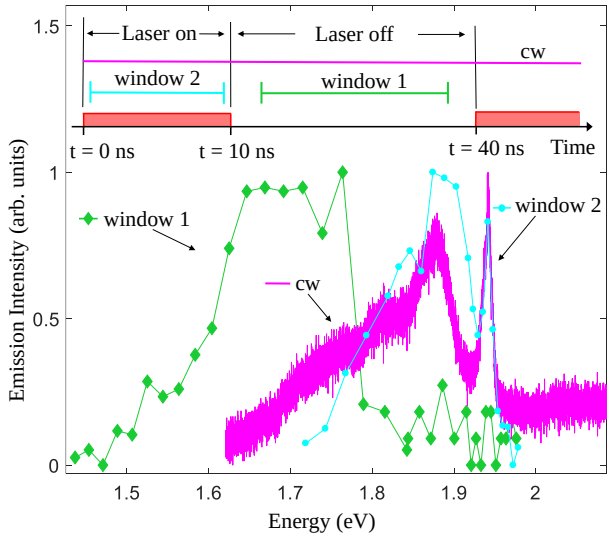

Supplementary Figure 2: Emission spectrum taken in a time-integration window after the laser pulse (window 1) when most of short-lifetime DXs recombine (green diamonds). The spectrum shows emission of long-lifetime IXs. The laser profile and signal integration windows are shown above. The laser has a pulse duration of 10 ns and a period of 40 ns. Emission measured in window 2 during the laser pulse (cyan points) and cw spectrum (magenta line) are dominated by direct recombination. $V_g = -6$ V. $T = 2$ K.