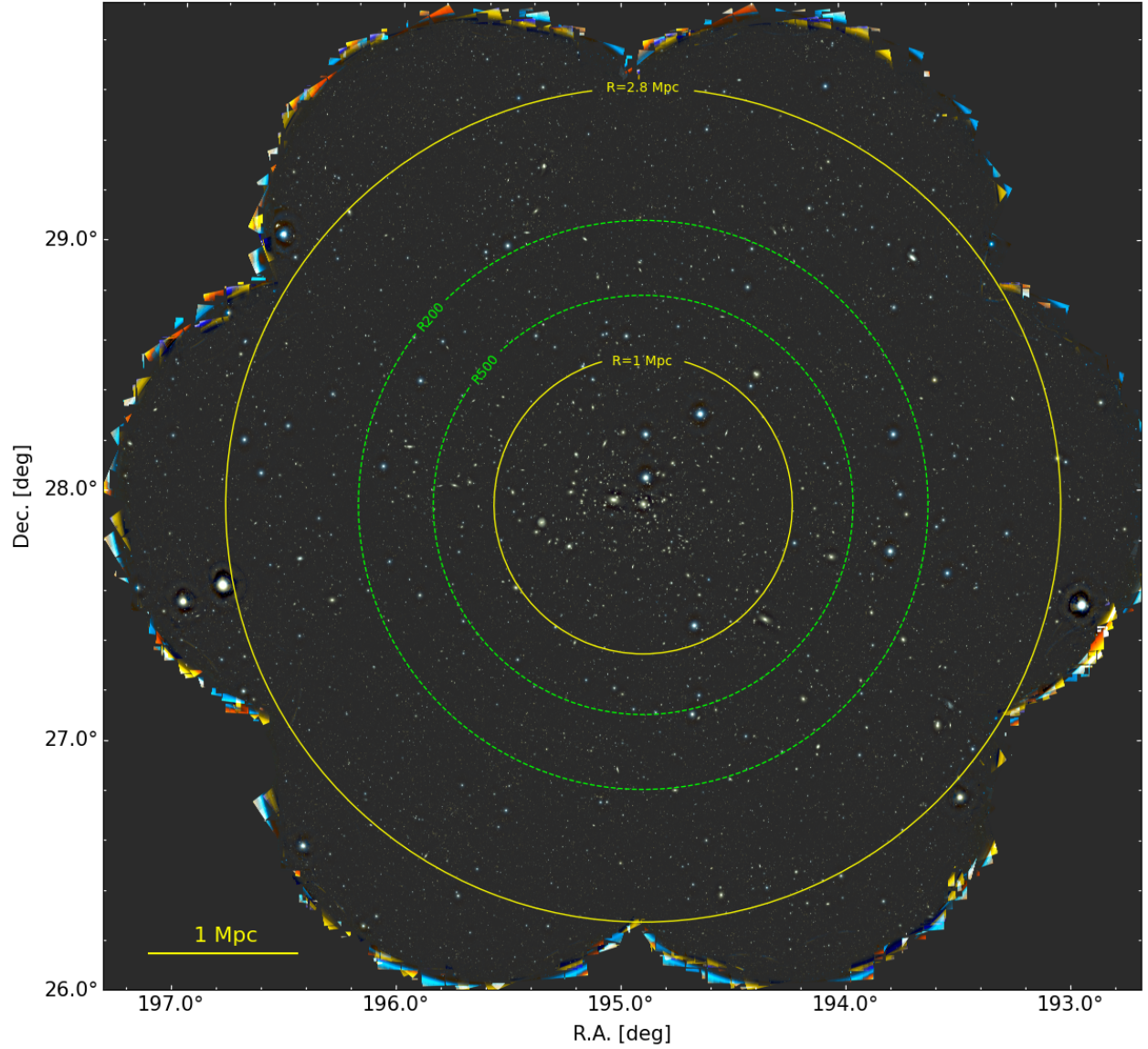
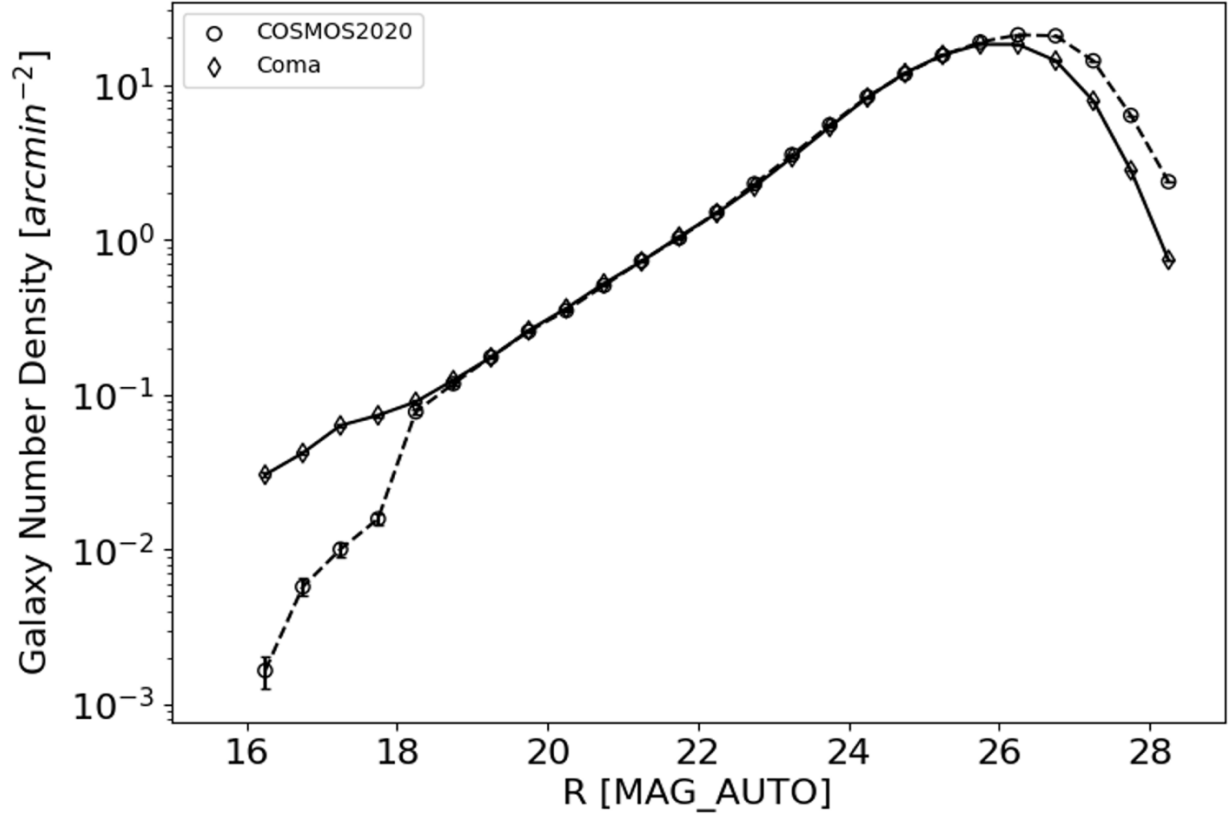


Weak-lensing detection of intracluster filaments in the Coma cluster

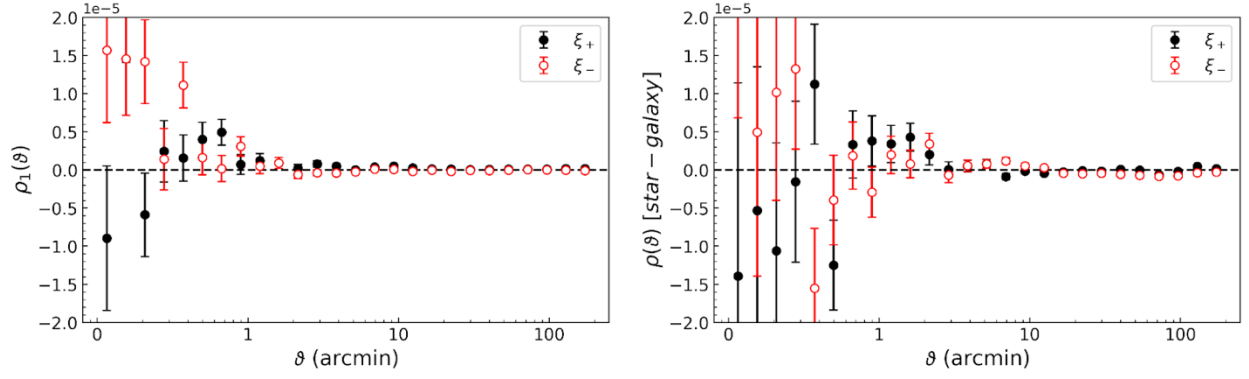
In the format provided by the
authors and unedited



Supplementary Figure 1: Color-composite image of the Coma cluster created with 7 pointings of Subaru/HSC observations. Blue, green, and red represent the intensities in g , $g+r$, and r filters, respectively. The R_{500} and R_{200} radii defined by our weak-lensing mass estimate ($M_{200c} = 8 \times 10^{14} M_{\odot}$) are indicated by green dashed circles. Yellow circles denote the annulus (1 - 2.8 Mpc) we use to detect the ICFs. The total effective area is ~ 12 sq. deg.



Supplementary Figure 2: Comparison of the number densities between the Coma and COSMOS2020 fields. In the bright magnitude regime ($R < 19$), the Coma field clearly shows an excess due to the presence of the cluster members. Within the source selection window ($23 < R < 26$), the number densities between the two fields are in excellent agreement, which illustrates that the cluster member contamination is negligible. Since the COSMOS2020 field is deeper, its number density is higher in the faint magnitude regime ($R > 26$). The error bars are drawn using the Poisson statistics.



Supplementary Figure 3: PSF and shape diagnostics. **Left:** The auto-correlation of the residual ellipticity (observed star ellipticity – model PSF ellipticity). The amplitude is $\sim 10^{-7}$ level on angular scales greater than $10'$. **Right:** The star-galaxy ellipticity cross-correlation. Again, the small correlation here shows that the shear systematic error due to the imperfect PSF model is negligible. The error bars represent 1σ uncertainties.

Supplementary Table 1: Summary of HSC observations

Filter	Exposure Time (<i>s</i>)	Observation Date	$\langle \text{FWHM} \rangle$ (arcsec)	Limiting Magnitude (1)
HSC- <i>g</i>	7,350	2016, 2017	1.3	23.2
HSC- <i>r</i> (2)	2,880	2016	1.4	24.6
HSC- <i>r</i> (3)	2,160	2016	0.7	25.0

(1) We quote the 5σ limiting magnitude of a point source. (2) Used for object detection. (3) Used

for shape measurement.