I will present an in-depth analysis of the COSMOS-Web ring, an Einstein ring at z ≈ 2 that we serendipitously discovered during the data reduction of the COSMOS-Web survey and that could be the most distant lens discovered to date.

I extract the visible and near-infrared photometry of the source and the lens from more than 25 bands. We combine these observations with far-infrared detections to study the dusty nature of the source and we derive the photometric redshifts and physical properties of both the lens and the source with three different SED fitting codes. Using JWST/NIRCam images, we also produce two lens models to (i) recover the total mass of the lens, (ii) derive the magnification of the system, (iii) reconstruct the morphology of the lensed source, and (iv) measure the slope of the total mass density profile of the lens.

Its total, stellar, and DM halo masses are consistent within the Einstein ring, so we do not need any unexpected changes in our description of the lens such as changing its initial mass function or including a non-negligible gas contribution. The most likely solution for the lensed source is at z ≈ 5.5. Its reconstructed morphology is complex and highly wavelength dependent, possibly because it is a merger or a main sequence galaxy with a heterogeneous dust distribution.

I will also present some aspects of the ongoing activities in terms of Strong Lensing in the Euclid consortium.