

GRAVITATIONAL LENSING – USING NATURE’S LARGEST TELESCOPES

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Our understanding of star formation history in the Universe has improved dramatically over the last decade. However, we are still unable to peer into the fundamental building blocks of star formation, star forming regions, at the epoch where the Universe formed most of its stars. Even HST’s resolution is not enough to resolve structures smaller than several hundred kpc at redshifts greater than 1. Gravitational lensing allows us to use clusters of galaxies as powerful telescopes, and thanks to their added magnification resolve high-redshift star forming regions as small as 100pc. In this talk, I will present the SDSS Giant Arcs Survey in which we found hundreds of lenses. I will explain the lens modeling procedure that enables the use of galaxy clusters as natural telescopes, show some reconstructions of lensed galaxies, and present some preliminary results from an HST program dedicated to image and model 37 galaxy-cluster lenses.