PROCEEDINGS OF SCIENCE

Cosmic Shear with ACS

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Distant galaxies are continuously deflected while travelling through the gravitational potential of the large-scale matter distribution in the Universe. The resulting distortion of the galaxy shapes can be measured statistically. Such a Cosmic Shear analysis provides a powerful tool to probe the growth of structure on different scales, and thus to distinguish between different cosmological models. We have accomplished a Cosmic Shear analysis of HST/ACS pure parallel observations. Due to its relatively large field-of-view in combination with space-based resolution, ACS provides excellent conditions to measure Cosmic Shear on small and intermediate angular scales. 54 deep ACS/WFC images with an average galaxy number density of ~ 85 per square arcminute and a median galaxy i-band AB magnitude of 25.8 mag were analysed. We thoroughly investigated the effect of the HST/ACS point spread function (psf) on the shear measurement. To account for the low number of stars present in many fields at high galactic latitudes, we developed a new method for the psf anisotropy correction. In this talk we will discuss identified systematic effects and present the results of the Cosmic Shear analysis.

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