

Abstract Submitted
for the MAS17 Meeting of
The American Physical Society

Analyzing 3D Mass Models for Galaxy Cluster Lensing CATIE RANEY, CHARLES KEETON, SEAN BRENNAN, Rutgers University — Galaxy clusters are the most massive gravitationally bound objects in our universe. Their large physical size coupled with this enormous mass makes them excellent tools for finding very faint, distant galaxies due to their ability to magnify background sources through gravitational lensing. The Hubble Frontier Fields are a new and incredibly deep data set for six such clusters. These fields have revealed a number of lensed high-redshift galaxies, some of which are seen just 500 million years after the Big Bang, giving us information on galactic formation and evolution. In order to study these galaxies, several teams have quantified the distortion and magnification from gravitational lensing by modeling the dark matter and galaxies within the cluster. However, there are galaxies in front of and behind the clusters that likely affect the light bending. We have identified important line-of-sight galaxies and extended the modeling methodology to include them, building the first fully 3D mass models for all of the Hubble Frontier Fields. We present our new models and compare them with standard 2D models to quantify the importance of line-of-sight effects in cluster lensing.

Catie Raney
Rutgers University

Date submitted: 29 Sep 2017

Electronic form version 1.4