

Cosmology Seminar

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Title: Measuring the Growth of Structure with Multi-Wavelength Surveys of Galaxy Clusters

Abstract: Current and near-future galaxy cluster surveys at a variety of wavelengths may provide a promising way to obtain precision measurements of structure growth over cosmic time. This in turn would serve as an important precision probe of cosmology. However, to realize the full potential of these surveys, systematic uncertainties in cluster mass estimates and sample selection must be well understood. This work follows two different approaches to understand these uncertainties. 1.) X-ray and weak-lensing mass estimates are compared for shear-selected galaxy clusters in the Deep Lens Survey (DLS) to study possible biases in using cluster baryons or weak-lensing shear as tracers of the cluster dark matter. Results are presented for four galaxy clusters that comprise the top-ranked shear-selected system in the DLS. 2.) Cluster sample selection is investigated in the context of upcoming arcminute-resolution millimeter-wavelength surveys. Large-area, realistic simulations of the microwave sky are constructed and cluster detection is simulated using a multi-frequency Wiener filter to separate the galaxy clusters, via their Sunyaev-Zel'dovich (SZ) signals, from other contaminating microwave signals.

**Monday December 17, 2007
12:10 - 1:30PM - Room 525 PHY/GEO**