

SPECIAL ASTRONOMY SEMINAR

November 22, 2011

Speaker : Dr. Anupreeta More
University of Chicago

Title : Investigating the group-scale lenses with
the SL2S-Arcs sample

Day, Date & Time : Monday, November 28, 2011 at 1600 hrs

Venue : TAP Seminar Room (A-269)

(A. Gopakumar)

Abstract

We present the Strong Lensing Legacy Survey - ARCS (SARCS) sample compiled from the final T0006 data release of the Canada-France-Hawaii Telescope Legacy Survey (CFHTLS). We use a semi-automatic method to find gravitational arcs. The candidate list is pruned by visual inspection and ranking to form the SARCS sample. The SARCS sample consists of 127 lens candidates which span arc radii $\sim 2''$ - $18''$ within the unmasked area of ~ 150 sq. deg. Within the sample, 54 systems are promising lenses amongst which, we find 12 giant arcs and 2 radial arc candidates. Owing to the large area and depth of the CFHTLS, we find the largest lens sample probing group scales for the first time. We compare the observed image separation distribution (ISD) of our arcs with theoretical models. A two-component density profile for the lenses which accounts for both the central galaxy and dark matter component is required by the data to explain the observed ISD. Unfortunately, current levels of uncertainties and degeneracies accommodate models both with and without adiabatic contraction. We also show the effects of changing parameters of the model that predict the ISD and that a larger lens sample might constrain relations such as the concentration-mass relation, mass-luminosity relation and slope of the luminosity function.