

Testing models for dark matter with extremely high angular resolution imaging of gravitational lenses

Gravitational lensing provides a powerful probe of the global mass properties of galaxies, which are most sensitive from observations at extremely high angular resolution. Here, we present the analysis of the mass properties of 10 massive elliptical galaxies at intermediate redshifts, by combining gravitational lensing and the sensitivity and resolving power of the Atacama Large Millimetre Array (ALMA). Using imaging at 25 mas resolution, we find that complex mass models with angular structure are strongly favoured by the data. We will also present a discussion of the population of low mass haloes that can be detected with these data, which can be used to discriminate between warm and cold dark matter models for a statistically significant sample size. We will also briefly provide an overview of future studies using the SKA-MID, ngVLA and upgraded ALMA.

Author: Prof. MCKEAN, John

Presenter: Prof. MCKEAN, John