

**Title:** MACHOs, Dark Matter Halos, and Central Black Holes: Exploiting the Motions of Individual Stars in the Local Group

**Abstract:**

It is only via the study of the kinematics of their constituent stars (and gas, when present) that the total (luminous plus dark) mass distribution of stellar systems can be inferred. Until recently, this has been mostly done by analyzing integrated light measurements of unresolved stellar populations, instead of data for individual tracers. However, the latter is the only data that are generally available in a large class of problems, ranging from the individual motions of stars in stellar clusters to those of planetary nebulae or globular clusters in galactic halos. I will present a number of studies that take advantage of the velocities of individual, resolved stars in stellar systems of the Local Group in order to constrain the properties and nature of unseen matter in such systems.