Contribution ID: **41** Type: **not specified**

Dynamical evolutions in globular clusters and dwarf galaxies

We present a new two-fluid conduction scheme to simulate the evolution of an isolated, self-gravitating, equilibrium cluster of stars and collisionless dark matter on secular (gravothermal) timescales. We integrate the equations in Lagrangian coordinates via a second-order, semi-implicit algorithm, which is unconditionally stable when the mass of the lighter species is much less than that of the heavier species. The method can be straightforwardly generalized to handle a multispecies system with a population of stars or components beyond collisionless dark matter and stars. We apply the method to simulate the dynamical evolution of stellar-dark matter systems, exploring the consequences of mass segregation and gravothermal core collapse, and assessing those effects for observed globular clusters and dwarf galaxies in the Local Volume.

Presenter: Prof. 钟, 益鸣 (香港城市大学)

Session Classification: Session 1