



PHYSICS AND ASTRONOMY SEMINAR

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“Reconsidering the Milky Way's Thick Disk: What We Can Learn from Observations and Simulations”

Abstract

Just how did the Milky Way's thick disk form? Are there chemical or dynamic tracers that can indicate the dominant formation mechanism? What caveats or pitfalls must we be aware of when using observations as a formation constraint? In my talk, I will discuss the four most popular theories of thick disk formation: accretion, violent relaxation, substructure disruption and radial migration. I will highlight recent simulation work associated with each theory and focus on investigations of radial migration from University of Washington's N-body Shop. I will also review the evolving state of observations of the Milky Way's thick disk, paying particular attention to several SDSS-based studies. In addition, I will discuss new and forthcoming datasets such as SEGUE and APOGEE which contain large, robust measurements of $[\alpha/\text{Fe}]$; these datasets provide us with a unique opportunity to reconsider how we identify membership to the thick disk based on chemistry. But will this technique draw us any closer to resolving which formation mechanism generated the thick disk? In my talk, I will discuss what we can reasonably expect to learn from observations of the thick disk and where simulations will head in the next 3-5 years.

Wednesday, September 14, 2011
11:00 a.m.
Elliott Building
Room 060