

Name: Derek Buzasi
Email: dbuzasi@fgcu.edu
Institution: Florida Gulf Coast University
Title: A Dynamic One-Dimensional Implementation of a GEC heating model for Hot Jupiters
Type: Poster
Session: Planet Formation and Migration Theories
Abstract: Kepler data have confirmed earlier results which show that hot Jupiters close to their host stars have radii which are “inflated” beyond levels anticipated based on stellar insolation alone. Recently it has been suggested that Joule heating arising from magnetospheric currents driven by the stellar wind and closing in the planetary interior might be at least partly responsible for this phenomenon, which mimics on a much larger scale the global electric current (GEC) seen in our solar system. While energetically this hypothesis is reasonable, the simple models constructed to date have treated the planetary structure as fixed, and have not taken into account the dynamic effects of the heating on that structure. I have now incorporated a GEC module into MESA to produce more realistic models of hot Jupiters under this scenario, and discuss the continuing tenability of the mechanism.