

# **High Energy / Astrophysics Seminar**

## **Three-dimensional Polarimetric Imaging of Coronal Mass Ejections**

**Thomas Moran**

**Catholic University and NASA/Goddard Space Flight Center**

Coronal mass ejections (CMEs) are the most energetic phenomena in our solar system. These intriguing events can send millions of tons of material at the Earth, occasionally causing auroras and electrical power grid anomalies, affecting radio transmission and satellite operations, including GPS operations, and increasing energetic particle fluxes in the near-space environment (space weather). As such, CMEs continue to draw interest from government and the private sector. One of the goals of CME research is determining their three-dimensional structure and trajectory. Structural information can provide insight into their source and driving mechanisms, and trajectory information may improve prediction of travel times and effects at Earth. I present a new technique to obtain information on three-dimensional CME structure using polarimetric observations made using the ESA/NASA SOHO spacecraft and the two NASA STEREO spacecraft. In addition, I briefly present a theoretical magnetohydrodynamic CME model motivated by these analyses

**Monday, August 25, 2008**

**10:30 AM**

**385 INSCC**