



HAO Colloquium Series

(Refreshments served)

Speaker: Brian Wood, Space Science Division, NRL

Time: 1:30–2:30 pm

Date: Wednesday, October 12, 2011

Location: CG1-South Auditorium

Title: Three-Dimensional Reconstructions of CMEs and CIRs from STEREO

Abstract:

The STEREO mission studies the structure of coronal mass ejections (CMEs) by using two different spacecraft to simultaneously observe the Sun and inner heliosphere from two very different vantage points, one (STEREO-A) orbiting ahead of Earth and one (STEREO-B) orbiting well behind. Besides this stereoscopic imaging capability, STEREO also carries heliospheric imagers capable of following CMEs continuously all the way to 1 AU. I will present many 3-D reconstructions of CMEs using STEREO data, many of which show strong evidence for a tube-shaped morphology consistent with the flux rope paradigm for CME magnetic structure. In some cases these reconstructions from imaging can be compared with *in situ* observations at 1 AU, if the CME happens to hit a spacecraft. Finally, STEREO's heliospheric imagers provide the first way to observationally study the 3-D shapes of corotating interaction regions (CIRs), which are invisible closer to the Sun in coronagraphic images. I will present reconstructions of two low-latitude CIRs that persisted for over a year in 2007–2008, representing the most prominent structures in the inner heliosphere during this period.