

**PHYSICS & ASTRONOMY COLLOQUIUM  
UNIVERSITY OF WISCONSIN – STEVENS POINT**

**FRIDAY, FEB 3, 2012  
2:00 PM Room A106 SCI**

**Britt Scharringhausen**

Department of Physics & Astronomy, Beloit College

**Measuring the Vertical Structure of the F Ring of Saturn**



Britt Scharringhausen is an associate professor of Physics and Astronomy at Beloit College. She received a B.S. in Physics and Astronomy from the University of Iowa in 1996 and a PhD in Astronomy from Cornell University in 2007. She and her undergraduate students, the Beloit Astronomy Research Group, study the rings of Saturn in observations from the Cassini Imaging Science Subsystem and Visual and Infrared Mapping Spectrometer.

**ABSTRACT:** Saturn's narrow, dusty F ring lies just outside the main rings. It is difficult to observe from Earth, except during a ring-plane crossing, when the rings are viewed edge-on. These events occur only about every 15 years. In a ring-plane crossing observed by Hubble Space Telescope in August 1995, an asymmetry in brightness between the east and west sides of the rings was observed. We have shown that the inclination of the F ring relative to the main rings caused the asymmetry, because the F ring can obscure the east and west side of the main rings to different extents. This discovery afforded an opportunity to measure the vertical thickness of the F ring, which we found to be  $13 \pm 7$  km. Since 2004, the F ring has been observed extensively by the Cassini spacecraft. The same techniques used to analyze the Earth ring-plane crossing can be applied to observations made during of crossings of the ring-plane by the Cassini spacecraft. Finer resolution and more rapid sampling allows us to probe the vertical structure of the F ring in even greater detail.

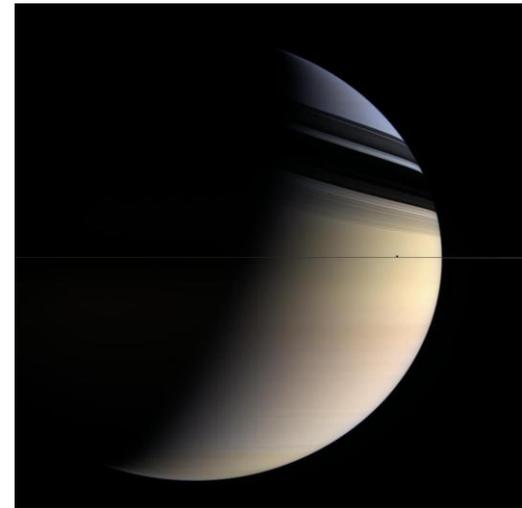


Image Credit:  
NASA/JPL/Space Science Institute

*Faculty, staff and students are cordially invited to attend.  
Refreshments will be served beginning at 1:45 pm*