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TIME: Friday, 2:00 PM, May 25, 2012 **LOCATION: A601 NAOC**

Cassini at Saturn: Radiation Interactions with Icy Satellites and Ring Particles

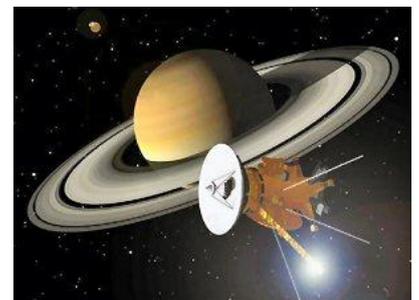


Dr. Robert E. Johnson (University of Virginia)

Prof. Robert E. Johnson is a John Llyod Newcomb Professor Engineering of Physics and Materials Science in the University of Virginia. He earned a Ph.D. in Physics from the University of Wisconsin. He is the Honorary Doctorate at Uppsala University. He was previously the Head of Engineering Physics at the University of Virginia, and is the John Lloyd Newcomb Chair in Engineering Physics and Materials Science. He is involved in a number of NASA's projects, and got the NASA Award: Cassini Instrument Team. He study ion, electron, and photon interactions with surfaces of low-temperature condensed-gas solids and biomolecular solids and with atmospheric gases. The principal processes studied are the ejection of molecules from the surface, called desorption or sputtering, and atomic collision cross sections.

Abstract

The Cassini spacecraft, which entered into orbit eight years ago this July, has collected an enormous amount of data on Saturn's magnetospheric plasma and on its many moons and rings. During orbit insertion, Cassini made its closest encounter with Saturn's main rings, detecting a toriodal oxygen ring atmosphere which we showed has a large seasonal variation and is produced by radiation-induced decomposition of the icy ring particles. The ambient plasma redistributes the molecules in the ring atmosphere and the gas and grains emitted from the small moon Enceladus, delivering oxygen to the upper atmospheres of Saturn and Titan and forming a giant neutral and plasma torus. The magnetospheric plasma in turn sputters the ring particles and icy satellite altering their surface properties and producing tenuous satellite atmospheres. The Cassini observations of the magnetospheric plasma and the satellite surface properties will be reviewed and modeling of the radiation processing will be described.



All are welcome! Tea, coffee, biscuits will be served at 1:45 P.M.

You are welcome to nominate speakers to Shude Mao (shude.mao@gmail.com), Licai Deng (licai@bao.ac.cn), Xuelei Chen (xuelei@cosmology.bao.ac.cn).