

SPACE AND COSMIC RAY PHYSICS SEMINAR

*University of Maryland
Computer & Space Sciences Building, Room 2400
4:30 PM Monday, April 18th, 2005
Coffee, Tea & cookies 4:00-4:30 PM*

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Charged Dust Dynamics at Jupiter

Circling Jupiter, largest of the planets, are diffuse dusty disks more than a million times less massive than Saturn's resplendent ring system. These structures are composed of micron-sized dust grains whose motions are dominated by Jupiter's gravity, but also strongly perturbed by electromagnetic and radiation forces. The interplay between these forces leads to unusual and often unexpected orbital dynamics with interesting observable consequences.

Over the past several years, Galileo measurements and groundbased imaging have drastically improved our knowledge the jovian ring system. We now recognize that the system consists of four components: a main ring 6000km wide but only 30km thick, whose inner edge blossoms into a 10,000km thick halo, and a pair of more distant tenuous Gossamer rings, one associated with each of the small moons Thebe and Amalthea. Bombardment of these satellites by interplanetary particles provides a continuous source of new ring material which is swept from the system on rapid timescales.

In this talk, I will describe our current understanding of the jovian ring system, and explain how its major features are sculpted by the dynamics of tiny charged dust grains.

<http://space.umd.edu/seminars>

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