HAO Colloquium Series

(Refreshments served)

Speaker: **Fran Bagenal, CU/LASP**

Time: **1:30–2:30 pm**

Date: **Wednesday, January 30, 2013**

Location: **CG1-2126**

Title: **Is Jupiter a colossal comet? Will Juno decide?**

Abstract:

Not surprisingly, the king of the planets has the strongest magnetic field among the planets of our solar system, with a reach extending far beyond its orbiting moons. The volcanic moon Io loses a ton of atmospheric material every second, gas that becomes ionized and swept up by the magnetic field. Iogenic plasma fills Jupiter's giant magnetosphere. Jupiter's magnetosphere is the largest structure in the solar system, averaging about 150 times the width of the planet. The solar wind streams past Jupiter, stretching the planet's magnetosphere into a long tail that can reach past the orbit of Saturn. The iogenic plasma is ultimately ejected down the tail and lost to the solar wind. The nature of the solar wind interaction with the magnetosphere may be very different from that at Earth—more like a comet and less magnetic reconnection. Juno's orbit over Jupiter's poles is designed to allow the spacecraft to map Jupiter's gravity and magnetic fields and the amount of water in its atmosphere, but the polar vantage point also affords Juno a perfect opportunity to study this completely unexplored region of magnetosphere. Some of the charged particles in the magnetosphere are funneled into the polar atmosphere to create intense auroral emissions, which Juno will observe with unprecedented resolution. Juno's stretched out orbit around Jupiter will also enable it to sample different portions of the magnetosphere over the course of the mission, building a more complete picture of the auroras and processes that control them. Instruments on the spacecraft will measure the flux particles that interact with the atmosphere to generate the auroras. Ultraviolet and infrared images will provide visual context for data from the magnetometer, plasma and radio-wave instruments, which will elucidate how charged particles are accelerated to 10s of keV energies in Jupiter's magnetosphere.

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