

Physics Colloquium

Michigan Technological University

Tuesday, October 16, 2007 at 11:00 am

NOTE: different date and time

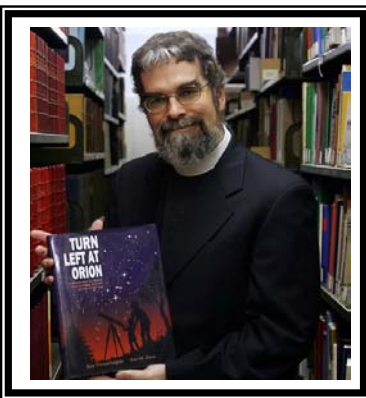
Room 139, Fisher Hall

The Porosity and Internal Structure of Asteroids, Comets, and Dwarf Planets: Are Asteroids Fluffy?

**Brother Guy Consolmagno SJ
Vatican Observatory**

Abstract: Recent spaceprobe visits to asteroids, the discovery of satellites in orbit around asteroids, and an analysis of how asteroids perturb other solar system bodies, plus advances in radar and infrared measurements to give us asteroid sized and shapes, has led to reliable determination of asteroid densities. In addition, these data allow an exploration of how small body shapes, densities, and spin states are related, allowing the lessons of the asteroid belt to be applied to trans-Neptunian objects and a possible definition of the boundary between small solar system objects and dwarf planets. When compared to the densities of the meteorites believed to come from the asteroid belt, a new understanding is emerging of how asteroids are put together -- with implications both for the origin of planets and for future human encounters with Near Earth Objects.

Biography: Brother Guy Consolmagno SJ was born in Detroit, Michigan. He earned undergraduate and masters' degrees from MIT, and a Ph. D. in Planetary Science from the University of Arizona, was a researcher at Harvard and MIT, served in the US Peace Corps (Kenya), and was an assistant professor of physics at Lafayette College before entering the Jesuits in 1989.



At the Vatican Observatory since 1993, his research explores connections between meteorites, asteroids, and the evolution of small solar system bodies, observing Kuiper Belt comets with the Vatican's 1.8 meter telescope in Arizona, and curating the Vatican meteorite collection held at the Pope's summer residence in Castel Gandolfo, Italy. Along with more than 100 scientific publications, he is the author of a number of books including Turn Left at Orion (with Dan Davis), Worlds Apart: A Textbook in Planetary Sciences (with Martha Schaefer), and Brother Astronomer; his latest book, God's Mechanics, will be released in October.

Dr. Consolmagno presently serves as chair of the Division for Planetary Sciences of the American Astronomical Society. He is the past president of Commission 16 (Planets and Satellites) and secretary of Division III (Planetary Systems Sciences) of the International Astronomical Union.