

# seminars



October 2-6, 2006

Monday, October 2, 2006

**Physics Colloquium** (Joint with Astronomy)

**Tom Murphy, USCD**

*“Shooting the Moon: Getting Serious about Gravity”*

4:00 P.M., Ronald Geballe Auditorium, A-102, PAA

Reception at 3:45 P.M. in the lobby

**Abstract:** The fundamental incompatibility of quantum mechanics with general relativity together with our well-quantified ignorance of large-scale gravity (dark energy, dark matter) strongly suggests that we intensify our tests of gravity. APOLLO (the Apache Point Observatory Lunar Laser-ranging Operation) is a new project that will bring about order-of-magnitude improvements in testing several fundamental aspects of gravity. Using a 3.5 meter telescope to bounce laser pulses off of the retroreflector arrays left on the moon by the Apollo astronauts, APOLLO is capable of one-millimeter range-precision. By determining the exact shape of the lunar orbit, it will be possible to test the equivalence principle, the time-rate-of-change of the gravitational constant, gravitomagnetism, and geodetic precession to at least ten times better precision than currently tested. In addition, APOLLO will be sensitive to departures from the inverse-square law of gravity and can potentially probe the effects of extra dimensions to which only gravity has access. APOLLO's record-breaking successes thus far will be reported.

Tuesday, October 3, 2006

**Condensed Matter & Atomic (CMA) Physics Seminar** Ed Stern, UW Dept. of Physics

4:00 P.M., Rm. C-421, PAT

*“Ultrafast XAFS measurements on laser excited Ge films”*

Friday, October 6, 2006

**Particle Theory Seminar**

2:30 P.M., Rm. C-421, PAT

Devin Walker, Wisconsin

*“Top Quarks at High Invariant Mass: A Model Independent Discriminator of New Physics at the LHC”*