

PHYSICS COLLOQUIUM

Dave Pritchard, MIT

"Precision Mass Measurement: ?cyclotron is not qB/m , does $E=mc^2$?"

Monday, January 8, 2007

4:00 P.M., Ronald Geballe Auditorium, A-102, PAA
Reception with coffee and cookies at 3:45 P.M. in the lobby

seminars



January 8-12, 2007

Abstract: We have developed an ion balance that has improved atomic and molecular mass measurement accuracy to $\sim 10^{-11}$. It compares the cyclotron frequency of two individual molecular or atomic ions trapped in a uniform magnetic field to find the mass ratio. Besides improving the mass of fundamental particles, this has led to discovery of a correction to the cyclotron resonance formula, a new route to determining the fine structure constant using simple physics, the best measurement of the dipole moment of any charged molecule, recalibration of the x-ray wavelength standard, a possible route to replace the artifact kilogram with an atomic mass standard, and a precise test of $E=mc^2$. We can also weigh chemical bonds.

INT Seminar

10:30 A.M., Rm. C-421, PAT

Tuomas Lappi, Brookhaven

"INT Long-Distance Seminar: The Glasma Initial Conditions of Heavy Ion Collisions"

Tuesday, January 9, 2007

Condensed Matter & Atomic (CMA) Physics Seminar

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

Doug Natelson, Rice University

"Single-molecule transistors: tools for physics and physical chemistry"

<http://courses.washington.edu/cmasem/abstracts/Natelson07.htm>

Wednesday, January 10, 2007

INT Seminar

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

David L Kaplan, MIT

"Nearby, Thermally Emitting Neutron Stars: Laboratories for Extreme Physics"

Thursday, January 11, 2007

Astronomy Colloquium

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

Leo Girardi, Osservatorio Astronomico di Padova, INAF

Coffee, cookies and conversation begin at 3:45 PM

Elementary Particle Experiment (EPE) Seminar

4:30 P.M., Rm. C-421, PAT

Ivan Furic, University of Chicago

"Matter-Antimatter Transformations at 3 Trillion Hertz"