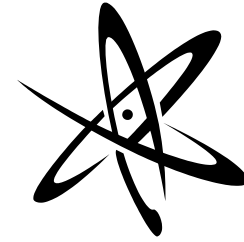


# University of Washington Department of Physics

# Seminars



*Sep 29<sup>th</sup> - Oct 3<sup>rd</sup>*

## PHYSICS COLLOQUIUM

**Mark Bokrath, California Institute of Technology**

“Carbon nanoelectronics: from correlated electrons to sensors and devices”

**Monday, September 29, 2008**

4:00 PM, Ronald Geballe Auditorium, Rm. A-102

Abstract: In my talk I will discuss a number of our ongoing research projects on carbon nanotubes and graphene, with the goals of studying fundamental physics in nanostructures as well as developing sensing and device applications. In particular, I will highlight our recent results demonstrating the following: (1) strongly correlated electron behavior in ultra-clean carbon nanotubes, specifically, one-dimensional (1D) Wigner crystallization of dilute holes in semiconducting nanotubes, and the formation of a 1D Mott insulator in nominally metallic nanotubes, indicating that carbon nanotubes are never truly metallic. Our results underscore nanotubes' promise for studying a variety of tunable correlated electron phenomena in 1D; (2) individual carbon nanotube nanomechanical resonators as atomic-scale resolution inertial mass sensors, with the prospects for single atomic mass unit sensitivity and chemical or isotope discrimination; and (3) non-volatile graphene atomic switches, which we understand by a model of electric field driven motion of single-atom wide chains of carbon. These devices have the potential for high density, long term storage of information.

**Monday, September 29 - Wednesday October 1**

**INT Symposium**

9:30 AM, C-520, PAT

**Collider Physics Symposium**

**Tuesday, September 30**

**Particle Theory and Astrophysics Seminar**

2:30 PM, Rm. 421, PAT

**Daniel Negradi, University of California San Diego**

“Nearly conformal gauge theories on the lattices”

**Condensed Matter and Atomic Physics Seminar**

4:00 PM, Rm. 421, PAT

**Mark Bokrath, California Institute of Technology**

“Strongly correlated electron behavior in carbon nanotubes”

**Thursday, October 2**

**Astronomy Colloquium**

3:30 PM, Rm. A-102, PAA

**Suzanee Hawley, University of Washington**

“State of the Department”

**Friday, October 3**

**Particle Astrophysics Seminar**

3:30 PM, Rm. A-110, PAA

**Mike Dziomba, University of Washington**

“What I Did This Summer: the Super-K DAQ upgrade”