

University of Washington • Department of Physics

PHYSICS COLLOQUIUM

Haiyan Gao (Duke University and Triangle Universities Nuclear Laboratory)

“A New Search on Neutron Electric Dipole Moment (nEDM)”

Monday, February 9th, 2009

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

Abstract: A new experiment is being planned to search for the neutron Electric Dipole Moment (nEDM) with an unprecedented sensitivity. The proposed search aims at a two-orders-of-magnitude improvement over the current experimental limit. A search for a non-zero value of the neutron EDM is a direct search of time reversal

symmetry (T) violation. It provides a unique insight into CP (Charge conjugation and parity) violation because of the CPT theorem. The Standard Model (SM) prediction for the neutron EDM is below the current experimental limit by several orders of magnitude. However, many proposed models of electroweak interaction which are extensions beyond the SM predict much larger values of neutron EDM. The new experiment has the potential to reduce the acceptable range of predictions by two orders of magnitude. Furthermore, if new sources of CP violation are present in nature beyond the Standard Model and are relevant to hadronic systems, this experiment offers a unique opportunity to measure a non-zero value of nEDM. The current understanding of the baryogenesis suggests that other sources of CP violation might exist in nature beyond the Standard Model and beyond what have been observed so far. To explain the baryon number asymmetry in the universe through the grand unified theory or electroweak baryogenesis, substantial New Physics in the CP violation sector is required. In this talk, I will discuss this new experiment following a brief review of previous neutron EDM experiments.

Tuesday, February 10th, 2009

Particle Theory Seminar

2:30 PM, Rm. C-421, PAT

CMA Seminar

4:00 PM, Rm. C-421, PAT

Thursday, February 12th, 2008

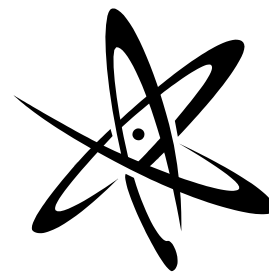
Physics Frontiers Seminar

12:30 PM, Rm. A-114, PAA

Astronomy Colloquium

4:00 PM, Rm. A-102, PAA

Seminars



Feb 9th-13th

Agostino Patella, Swansea University

John Sidles, UW Medicine and QSE

“Analyzing Quantum Limits to Magnetic Resonance Microscopy: Insights from Shannon, von Neumann, Feynman”

Ann Nelson, UW Physics

“Particle Theory in the LHC Era”

Robert D. Gehrz, University of Minnesota

“The Stratospheric Observatory for Infrared Astronomy (SOFIA)”

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Friday, February 13th, 2009

Particle Astrophysics Seminar
3:30 PM, Rm. A-114, PAA

Mike Dziomba, UW Physics
“How to assemble a POD detector “