

PHYSICS COLLOQUIUM, partially funded by the GSFEL

Larry Dalton  
UW Chemistry

“Understanding intermolecular interactions in condensed matter: Effects on order and nonlinear optical properties”

Monday, Oct 1, 2007

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

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

# SEMINARS



October 1-5, 2007

**Abstract:** A collaboration among physicists and chemists at the University of Washington has led to quantitative “first principles” prediction of linear and nonlinear optical properties for a variety of nanostructured organic materials and has led to the introduction of a new class of materials. This overall achievement in condensed matter theory has required developing a quantitative understanding of intermolecular electrostatic interactions including their influence on molecular order and medium dielectric properties. It has also required understanding dispersion relationships for linear and nonlinear optical properties. Dramatic (orders of magnitude) improvement in properties such as electro-optic activity have been inspired by advances in theoretical understanding and new processing material processing methodologies, e.g., laser-assisted electric field poling, have been developed and analyzed. Quantitative comparison of theory and experiment has required the development of new measurement techniques. The practical consequences of these advances will also be briefly discussed.

Tuesday, October 2<sup>nd</sup>, 2007

**Condensed Matter and Atomic (CMA) Physics Seminar:** Michael Hochberg, UW Electronic Engineering  
4 P.M., Rm. C-421, PAT “Integrated Ultrafast Optics in Silicon”

**Astrobiology Seminar** Dr. Erika Harnett, UW Earth and Space Sciences  
2:30 P.M., Rm. A-118, PAA “Mars: Where did all the water go?”

Thursday, October 4<sup>th</sup>, 2007

**CENPA Seminar:** Vladilen Goldberg, Texas A & M University, Cyclotron Institute  
2:30 P.M., Rm. 178, NPL, “Resonance Reactions Induced by Radioactive Beams” (Study of Exotic Nuclei and Applications to Nuclear Astrophysics)

Friday, October 5<sup>th</sup>, 2007

**Particle Astrophysics Seminar:** R.J. Wilkes, U.W. Physics  
3:30 P.M., Rm. A-110, PAB “Organizing session; group discussion of summer activities and autumn plans”