

UNIVERSITY OF NOTRE DAME  
DEPARTMENT OF PHYSICS  
COLLEGE OF SCIENCE

***SPECIAL***  
**NUCLEAR SEMINAR**

**Speaker:** Dr. Xiaofeng Wang  
Florida State University

**Title:** *The evolution of nuclear structure in  $^{158}\text{Er}$  and the collective structures at ultrahigh spin in the rare earth nuclei*

**Date:** Friday, June 8, 2012

**Time:** **2:00 pm EST**

**Place:** Nieuwland Science Hall Room 202

\*Refreshments will be served prior to the seminar in room 124.

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ALL INTERESTED PERSONS ARE CORDIALLY INVITED TO ATTEND

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Erbium-158 ( $^{158}\text{Er}$ ) is widely considered as a classic nucleus in the field of High Spin Nuclear Physics since it exhibits a number of beautiful structural changes as evolving with increasing excitation energy and angular momentum. After undergoing Coriolis induced alignments of high-j neutron and proton pairs, a dramatic prolate collective to oblate non-collective transition takes place via the mechanism of band termination. At the highest spins, a spectacular return to collective rotation is observed in the form of triaxial strongly deformed bands. This latter suggestion is based on a comparison of transition quadrupole moments ( $Q_t$ ) between experiment and theory, and long standing predictions that such heavy nuclei will possess nonaxial shapes on their path towards fission. In fact, the recent discoveries in  $^{158}\text{Er}$  have triggered a comprehensive project to explore phenomena at ultrahigh spin in the light rare earth nuclei.