UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, October 24

Shape coexistence and the role of reflection and non-axial symmetry in nuclei

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Understanding the nature of the fundamental interactions between protons and neutrons, and how they are organized within the nucleus continues to be one of the main research frontiers of nuclear science. Major progress in this quest have been possible due to advances in detector technologies that have allowed the exploration of regions far beyond the valley of beta stability. In this talk, I will discuss how experiments designed to study the most basic property of the nucleus, i.e., the shape, have advanced our understanding of the nuclear system. In particular, I will present results of our recent measurements using projectile Coulomb excitation to study the various shape degrees of freedom and associated phenomena that are capable of providing answers to current open questions in both nuclear structure and fundamental interactions. The talk will focus primarily on the the electromagnetic properties of low-lying states in ^{72,76}Ge and ^{144}Ba which were investigated via multistep Coulomb excitation measurement using the advanced gamma-ray tracking array, GRETINA and the charged particle detector, CHICO2. The influence of reflection symmetry and axial asymmetry on the shape of these nuclei along with the results of multi-configuration mixing calculations carried out within the framework of the triaxial rotor model will highlighted.

4 pm – 5 pm

Nuclear Science Laboratory

124 Nieuwland Science Hall

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All interested persons are cordially invited to attend

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Refreshments will be served prior to the seminar in room 124