

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, November 7

Recent progress on the covariant density functional theory for nuclear spectroscopy

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The development of worldwide rare isotope beam facilities has brought many new insights in nuclear physics. In particular, the nuclear spectroscopic properties, which reveal rich structure information of atomic nuclei, has acquired great interests over the years for the challenges and implications it involves. Theoretically, covariant density functional theory (CDFT) has achieved great success in describing many nuclear phenomena over the past several decades. In this talk, I will highlight the recent progress in improving and extending the nuclear CDFT, which is motivated by experimental results on both nuclear ground and excited states. We developed a new covariant functional PC-PK1, which considerably improves the isospin dependence of nuclear properties, and is more reliable for the description of neutron-rich nuclei. We also extended CDFT for nuclear spectroscopic properties within the tilted-axis-cranking approach. It has provided successful description of novel rotation and exotic shape for nuclei towards high isospin and spin. Finally, I will also introduce the very recent progress on a new method to calculate spectroscopic properties of deformed nuclei: configuration interaction on top of projected density functional theory (CI-PDFT).

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