



Wednesday

April 25

4:00 P.M.

Rm 118 NSH

Nuclear physics of stellar explosions

Dr. Artemis Spyrou

Associate Professor & Associate Director for Education,
Experimental Nuclear Physics, Michigan State University

- How are the heavy elements synthesized in the cosmos?
- Is the merging of two neutron stars the source of all heavy elements?
- How do supernovae explode?

Questions like these are driving the field of Nuclear Astrophysics, where astrophysical observations and modeling meet nuclear physics experiments and theory. Stellar observations provide new evidence of nucleosynthesis in different astrophysical environments. Modeling and understanding these environments requires an accurate description of the nuclear physics involved in the stellar events. Nuclear reactions, radioactive decay and the properties of individual nuclei are important components of this complex puzzle and major effort is devoted from experiment and theory to address this need. This talk will focus on the nuclear physics aspects of heavy element nucleosynthesis in different explosive environments. I will present experiments performed at the National Superconducting Cyclotron Laboratory (NSCL), at Michigan State University. The NSCL is a rare isotope beam facility that can give unique access to nuclei involved in astrophysical processes. I will discuss recent experiments, new initiatives, and where we expect to go in the future, with a particular focus on the recent discover of the merging of two neutron stars.

This lecture has been generously funded through The IBM Corporate Lecture Series, created to foster women's inclusion in science, technology, engineering and mathematics (STEM).



PHYSICS



UNIVERSITY OF
NOTRE DAME

COLLEGE OF SCIENCE