Joint Nuclear and Astrophysics Seminar

- **When: Friday January 31st at 12.00PM**
- **Where: Room 228 Cyclotron Institute**
- **Speakers: Jeremy W. Holt and Peter Brown**

New Results from NASA's NICER Mission

Jeremy W. Holt

Neutron stars, born in the aftermath of stellar core collapse, are intriguing objects of study in both astronomy and nuclear physics. Observational constraints on neutron star maximum masses, radii, and tidal deformabilities have the potential to improve our understanding of matter at ultra-high densities found in the inner cores of neutron stars. In this talk, I will discuss new results from NASA's NICER mission, which has extracted neutron star radii from precise spectral and timing measurements of thermal x-ray waveforms emitted by rotation-powered pulsars. I will also discuss implications for nuclear physics and prospects for future NICER measurements.

The Zoo of Supernova Explosions

Peter Brown

Over the last few decades, numerous surveys have contributed to an exponential increase in the number of supernova transients discovered each year. The shear numbers lead to the discovery of peculiar objects which represent rare, but real outcomes for the deaths of stars. I will review the current variety of supernovae and what they might tell us about the progenitor stars and the remnants (or lack thereof).