

The Particle, Nuclear & Astronomical Sciences Seminars series presents:

**Arnau Rios Huguet**  
(Michigan State University)

*Hot Dense Matter and Neutron Stars: Finite  
Temperature Effects on Nuclear Systems*

**Monday, Oct. 29**

**2:30 P.M.**

**304 Robeson Hall**

The dense hadronic matter present in the interior of neutron stars and presumably in some stages of intermediate energy heavy-ion collisions is not cold. Indeed, the temperatures during the last stages of a supernova explosion can be of the order of 10-50 MeV and therefore thermal effects can be as important as those induced by the strong interaction between the constituents of the stars. We will discuss the properties of the hot and dense matter present in these scenarios and how some of its thermal properties can be inferred from experimental data. We will also try to outline how the thermal effects can be studied using different quantum many-body techniques. The implication of such effects in the neutrino emission/cooling of neutron stars will be discussed.