

Department of Physics & Astronomy

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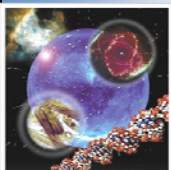
Friday, March 21, 2014

3:15p.m. - 4:15p.m.

BB 3.04.08

The Physics of the Neutron Star Crust-Core Transition: Observable Consequences and Symmetry Energy Constraints

A neutron star's life cycle can pass through several different epochs which can be associated with internal (thermo) dynamical processes, sometimes intrinsic to the star, sometimes stimulated by external interactions with a companion star. The observable consequences of these processes can help shed light on the interior structure and dynamics of the star and the micro-physics that underlies them. In this talk, I will examine a number of observables thought to probe in some way the dynamical and thermal properties of the neutron star's crust and its coupling to the neutron star core. I will touch upon some of the following topics: (i) The cooling rate of the neutron star in Cassiopeia A, (ii) the upper limit of the observed periods of young X-ray pulsars, (iii) glitches from the Vela pulsar, (iv) the frequencies of quasi-periodic observations in X-ray tail of light curves from giant flares from soft gamma-ray repeaters, (v) the upper limit on the frequency to which millisecond pulsars can be spun-up due to accretion from a binary companion, and (vi) tentative observations of precursor electromagnetic flares a few seconds before short gamma-ray bursts.



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