APR14-2014-020017

Abstract for an Invited Paper
for the APR14 Meeting of
the American Physical Society

Measurement of Neutron Star Radii with X-ray Binaries and Recycled Pulsars

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Detailed modeling of the observed surface X-ray radiation from neutron stars can in principle reveal their interior structure, thereby constraining the state of matter at the most extreme densities. This talk will provide a summary of on-going observational efforts with the *Chandra X-ray Observatory* and *XMM-Newton* towards this end, with a focus on two particular varieties of neutron stars – thermally-emitting quiescent low-mass X-ray binaries and "recycled" millisecond pulsars. An overview of future prospects for measuring the elusive neutron star equation of state using forthcoming X-ray missions such as the Neutron Star Interior Composition ExploreR (NICER) and Athena+ will also be presented.