

# PHYSICS AND ASTRONOMY COLLOQUIUM

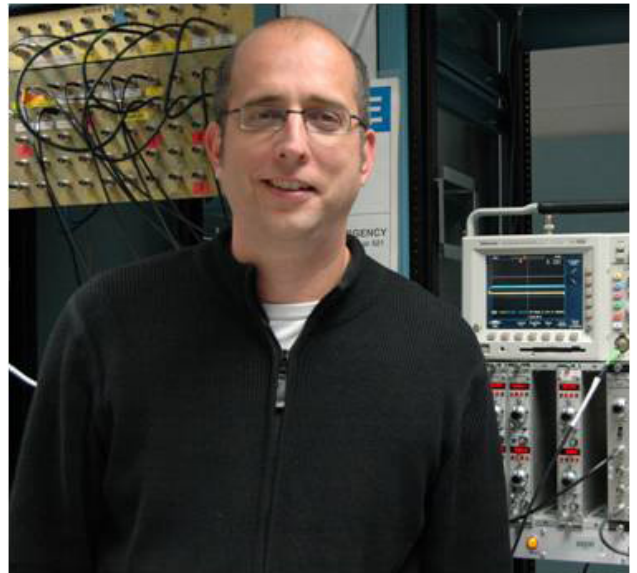
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X-ray bursts, Palladium Oceans, and Cold Fusion  
The Strange World of Accreting Neutron Stars

Accreting neutron stars are bright astronomical X-ray sources that show a wide range of nuclear physics driven phenomena. The multitude of observables make them prime laboratories to study thermonuclear explosions and the properties of matter at extreme densities. Rare isotopes play a central role in the underlying nuclear reaction sequences and range from the most neutron deficient to the most neutron rich rare isotope created in nature. Despite of the short terrestrial lifetimes of these isotopes of typically milli-seconds, their properties shape the key observables.

I will review recent progress in astronomy, in the theoretical understanding of the nuclear processes, and in attempts to experimentally produce and study the relevant rare isotopes in accelerator laboratories. I will also mention the opportunities at the new FRIB accelerator facility to produce beams of most nuclei in neutron stars.



**THURSDAY, OCTOBER 3, 2013 | 4:00 PM | HAWKING AUDITORIUM**



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