

**Space Science Seminar**  
**Tuesday, 2015 May 5**  
**10:30 a.m.**  
**NSSTC/2096**

**X-ray Spectropolarimetric Observations of  
Black Holes and Neutron Stars with the  
Balloon-Borne X-Calibur Experiment**

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Missouri

Host: Dr. Jessica Gaskin (sponsored by ZP12)

X-ray polarimetry promises to give qualitatively new information about high-energy astrophysical sources such as black holes in X-ray binaries, mass accreting supermassive black holes, mass accreting neutron stars, X-ray bright pulsars, magnetars, and gamma-ray bursts. We have developed a scattering polarimeter (X-Calibur) which can be used in the focal plane of a grazing incidence X-ray mirror assembly. X-Calibur combines a low-Z scatterer with an assembly of pixelated Cadmium Zinc Telluride (CZT) detectors to achieve excellent  $O(100\%)$  detection efficiency over the broad 20-80 keV energy range. In this talk I will discuss the design and test of the polarimeter and the scientific objectives of two upcoming X-Calibur balloon flights (Fall 2016 from Fort Sumner, NM, and 2018/2019 from McMurdo, Ross Island).

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