Abstract Submitted
for the PSF09 Meeting of
The American Physical Society

The Student Experiment on the GEMS Mission RYAN ALLURED, PHILIP KAARET, ZACHARY PRIESKORN, ALICIA MAXWELL, University of Iowa, GEMS TEAM — The Gravity and Extreme Magnetism Small Explorer (GEMS) is an exciting new mission that will make X-ray polarization measurements of a large number of objects of different classes. The main instrument is sensitive in the 2-10keV band. Students at the University of Iowa are currently building a Bragg Reflection Polarimeter (BRP) that will supplement the main instrument by providing sensitivity at 500eV. The BRP consists of a multilayer crystal reflector, a proportional counter, and electronics. The multilayer crystal will be used to reflect the soft X-rays from the telescope beam to the proportional counter. In addition to having a high reflectivity at 500eV, the reflector must transmit the high-energy X-rays efficiently, so as not to interfere with the main instrument. The proportional counter will use charge division to sense position in one dimension, and will contain anti-coincidence anodes to reject background events. The BRP will make polarization measurements by measuring the intensity of observed radiation as the spacecraft rotates around the telescope axis. The primary use for low energy polarization measurements is to fix the inclination angle of the accretion disks of black holes.

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Date submitted: 16 Oct 2009 Electronic form version 1.4