

Abstract Submitted
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X-ray Polarimetry with a Negative Ion TPC ZACHARY PRIESKORN, University of Iowa, J. KEVIN BLACK, NASA GSFC/Rock Creek Scientific, JOANNE HILL, KEITH JAHODA, NASA GSFC, PHILIP KAARET, University of Iowa — A nitromethane (CH_3NO_2) based negative ion time projection chamber (NITPC) X-ray polarimeter has been developed for measuring the polarization of energetic transients in the 2 – 10 keV energy range. A NITPC X-ray polarimeter combines a large area detector with large modulation factors and high quantum efficiency. The primary goal is to measure the polarization of the prompt X-ray emission from gamma-ray bursts (GRBs). We detail recent improvements made to the detector design. Changes were made in the design of the GEM mounting setup, strip mounting setup, drift field cage and material selection. With a gas mixture of 197.5 Torr of CO_2 and 15 Torr of CH_3NO_2 a modulation factor of $39.3 \pm 0.8\%$ was measured for 4.5 keV X-rays at the Brookhaven National Laboratory NSLS. Modulation factors at multiple energies between 3.5 and 8 keV will be reported.

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