

Abstract Submitted  
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**Measuring neutron recoil polarization in the photoproduction off deuterium** SVYATOSLAV TKACHENKO, University of Virginia — The dependence on the photon energy of the neutron recoil polarization  $P_{y'}$  in the inclusive polarized photoproduction off the deuteron is not well-understood. The only comprehensive measurement by Nath et al lines up with both potential and effective field theory models up to a photon energy of about 12 MeV and then abruptly departs, indicating the possibility of a new channel opening. The  $P_{y'}$  angular dependence is not known well either, the few existing measurements having large uncertainties. We will measure  $P_{y'}$  for a range of photon energies and neutron scattering angles, covering the kinematic region in which the discrepancy between data and theory exists. The measurements will be performed at the High Intensity Gamma Source (HI $\gamma$ S) facility located at Duke University. A heavy water target in conjunction with a set of analyzer/scintillator-cell assemblies will provide polarization analysis of the ejected neutrons. The experiment will take place in 2015, with physics results expected in 2015-2016.

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