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Neutron Beam Characterization for the NPDGamma Experiment at the Spallation Neutron Source ELISE MARTIN, University of Kentucky, NPDGAMMA COLLABORATION — The NPDGamma experiment is being carried out at the FnPB at the Spallation Neutron Source to study the effect of the weak nucleon-nucleon interaction in the $\vec{n} + p \rightarrow d + \gamma$ reaction. In the experiment, polarized low-energy neutrons capture on protons in a liquid hydrogen target. The parity-violating gamma spin-asymmetry, detected in a 3π detector, is a clean signature of the weak interaction. To control systematic errors and achieve statistical precision, it is important to know the characteristics of the polarized neutron beam. We will discuss simulations and comparative data for the neutron beam flux, profile, and optimized neutron chopper settings.

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