

Abstract Submitted
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Mapping of the magnetic field for the NPDGamma Experiment¹

S. JASMIN SCHAEDLER, Jacobs University Bremen, Germany, STEFAN BAESSLER, University of Virginia, SEPTIMIU BALASCUTA, Arizona State University, SEPO PENTILLA, Oak Ridge National Laboratory, NPDGAMMA COLLABORATION — In the NPDGamma-experiment the parity-violating weak meson exchange forces in the reaction $\vec{n} + p \rightarrow d + \gamma$ are studied by measuring the angular correlation A_γ of the emitted photons with respect to the direction of the neutron spin. The experiment is presently being setup at the Fundamental Physics Beam Line of the Spallation Neutron Source in Oak Ridge, TN. From the exit of the polarizer to the liquid Hydrogen target, the cold neutrons are moving in an almost vertical magnetic field. For the field calibration and adjustment a set of four guide coils and four shim coil systems are used. The strength and the direction of the field are measured using two magnetic flux gate sensors. The field magnitude is required to be 98 mT and the vertical field gradient less than $2.2 \mu\text{T}/\text{cm}$ between the spin flipper and the end of the target. The magnetic field in the target volume has to be vertical better than 2 mrad, to decrease the systematic errors. The measuring procedure and the mapping of the B-field will be presented.

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