

Abstract Submitted  
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**Calculations of magnetic fields for the NPDGamma experiment at the SNS** SEPTIMIU BALASCUTA, Arizona State University, Department of Physics, RICARDO ALARCON, Arizona State University, Department of Physics, AZ, SEppo PENTTILA, Oak Ridge National Laboratory, SNS, TN, GEOFF GREENE, University of Tennessee, Physics Department, Knoxville, TN — The NPDGamma experiment measures the parity-violating directional  $\gamma$ -ray asymmetry in the capture of polarized cold neutrons on liquid para-hydrogen using a pulsed neutron beam from the Spallation Neutron Source, a Super Mirror Polarizer and a Spin Flipper. Using Finite Element Analysis programs we have designed the permanent magnets of the compensation magnet of the Super Mirror Polarizer and the optimum geometry of the guide coils to generate the static 10 Gauss guide field. A magnetic shielding around the experiment has been designed to attenuate the residual fields outside the NPDGamma concrete cave. The efficiency of the Spin Flipper was estimated. The magnetic field gradients inside the beam volume from the Spin Flipper to the exit of the Hydrogen Target were shown to be small enough such that they do not produce a systematic effect to the experiment through the Stern-Gerlach steering of the neutron spin.

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