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**Precision Polarimetry for Cold Neutrons** LIBERTAD BARRON-PALOS, Arizona State University, J. DAVID BOWMAN, Oak Ridge National Laboratory, TIMOTHY E. CHUPP, University of Michigan Ann Arbor, CHRISTOPHER CRAWFORD, University of Tennessee, AREG DANAGOULIAN, Los Alamos National Laboratory, THOMAS R. GENTILE, National Institute of Standards and Technology, GORDON JONES, Hamilton College, ANDREAS KLEIN, Los Alamos National Laboratory, SEPPO I. PENTTILA, Oak Ridge National Laboratory, AMERICO SALAS-BACCI, Los Alamos National Laboratory, MONISHA SHARMA, University of Michigan Ann Arbor, W. SCOTT WILBURN, Los Alamos National Laboratory — The abBA and PANDA experiments, currently under development, aim to measure the correlation coefficients in the polarized free neutron beta decay at the FnPB in SNS. The polarization of the neutron beam, polarized with a  $^3\text{He}$  spin filter, has to be known with high precision in order to achieve the goal accuracy of these experiments. In the NPDGamma experiment, where a  $^3\text{He}$  spin filter was used, it was observed that backgrounds play an important role in the precision to which the polarization can be determined. An experiment that focuses in the reduction of background sources to establish techniques and find the upper limit for the polarization accuracy with these spin filters is currently in progress at LANSCE. A description of the measurement and results will be presented.

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