

Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

^3He polarizer performance in the NPDGamma experiment¹ MONISHA SHARMA, University of Michigan Ann Arbor, FOR THE NPDGAMMA COLLABORATION — The ability to polarize neutrons in a broad energy range and measure the neutron polarization with absolute accuracy using a ^3He polarizer has opened up opportunities in Nuclear and other branches of Physics. ^3He polarizers are based on the transmission of neutrons through the polarized ^3He gas which has a strong spin dependent absorption of neutrons. A ^3He polarizer is currently in use in the NPDGamma experiment on FP12 at LANSCE. In a ^3He polarizer, ^3He polarization is produced by the Rb spin exchange method. With the previous cell, BooBoo, used in the experiment maximum ^3He polarization of 57% was obtained and the neutron polarization of 80% was obtained at 5 Å. For the final run of the experiment a new cell, Pebbles, which is considered to be a better cell as compared to BooBoo will be used. The set up for the polarizer has been improved to obtain a better polarization. Improvements include greater laser power, achieved by combining two fiber-coupled laser diodes into a single fiber and a new oven for heating the cell, which will allow more stable and higher temperatures. In this work, we will present the behavior of the polarizer and the neutron polarization in the NPDGamma experiment.

¹This work is supported by U.S. National Science Foundation, the Department of Energy and NIST.

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Date submitted: 06 Jul 2006

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