

Abstract Submitted  
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**Parity-violating asymmetry from the capture of polarized neutrons on  $^{27}\text{Al}$**  SEPTIMIU BALASCUTA, RICARDO ALARCON, Arizona State University, JAMES D. BOWMAN, SEPO PENTTILA, Oak Ridge National Laboratory, NPDGAMMA COLLABORATION — The NPDGamma experiment at the Fundamental Neutron Physics Beamline at the Spallation Neutron Source seeks to determine the strength of the hadronic weak interaction by measuring the parity-violating asymmetry in the angular distribution of the gamma rays emitted in the capture of polarized cold neutrons on protons. The photons are detected in an array of 48 CsI detectors cylindrically arranged around a liquid hydrogen target and about 15% of the measured photon yield is from the Al target vessel. It is therefore necessary to independently measure the parity-violating asymmetry from Al to quantify it and then correct the measured asymmetry obtained from the hydrogen target accordingly. We have measured the parity-violating photon asymmetry from the capture of polarized cold neutrons on an Al target using the SNS pulsed cold neutron beam and the NPDGamma experimental setup. The results are compared with a theoretical calculation of the capture of polarized cold neutrons in the Al vessel of the hydrogen target done by simulating the gamma cascade emitted from the excited  $^{28}\text{Al}$  nucleus and of the bremsstrahlung radiation of the electrons emitted in the nuclear beta decay of  $^{28}\text{Al}$ .

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