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Gamma-ray asymmetry measurements in the capture of polarized cold neutrons on ²⁷Al SEPTIMIU BALASCUTA, Arizona State University, NPDGAMMA COLLABORATION — We have measured parity-violating (PV) and parity-allowed (PA) asymmetries in the angular distribution of the gamma rays emitted from the capture of cold polarized neutrons in a solid Al target at the SNS Beam Line 13 at ORNL. The measurement is a part of the systematic studies of the NPDGamma experiment. About 20% of the detector signal in the NPDGamma is produced by neutrons captured in the Al walls and the beam windows of the liquid para-hydrogen target. Therefore it is necessary to measure the strength of PV and PA gamma-ray asymmetries in Al. The sources of instrumental and physical systematic errors in the measured Al data and the contributions of the strong and electromagnetic components of the spin-orbit interaction to the PA asymmetry were identified and will be discussed.

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