

Abstract Submitted
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Near-Threshold Measurement of $\gamma n \rightarrow p\pi^-$ at MAX-lab¹ GRANT O'RIELLY, University of Massachusetts Dartmouth, PIONS@MAXLAB COLLABORATION — One of the outstanding questions in nuclear science is to be able to describe the dynamical properties of the nucleon using the framework provided by QCD. Pion photoproduction near threshold is one process where both experimental measurements and theoretical calculations can produce valid and useful results. Consequently, high-quality measurements of this fundamental nuclear process can be used to test the predictions of various theoretical approaches. These measurements also provide data to improve the SAID and MAID partial-wave analyses used in the interpretation of other measurements. The Photon Tagging Facility at MAX-lab in Lund, Sweden is uniquely suited to perform measurements of pion photoproduction at energies between threshold and the Δ -resonance. The PIONS@MAXLAB Collaboration is performing a measurement of the $\gamma n \rightarrow p\pi^-$ channel very close to threshold. Using a LD₂ target and the reaction $\gamma d \rightarrow pp\pi^-$, the π^- is captured on another deuteron creating a high-energy photon which was detected using three large NaI spectrometers. These new near-threshold data will be used to better evaluate the threshold $E_0^+(\pi^-p)$ amplitude, which can be compared with the theoretical predictions. Initial results will be presented.

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