

Abstract Submitted
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Study of two pion photoproduction on deuteron KENTAROU HIROSE, Department of Physics, Tohoku University, THE NKS COLLABORATION — We studied the $\gamma d \rightarrow pn\pi^+\pi^-$ reaction at $E_\gamma = 0.8 \sim 1.1$ GeV. It was carried out at the tagged photon facility of the Laboratory of Nuclear Science, Tohoku University. Neutral Kaon Spectrometer was used for detection of charged particles and liquid deuterium was used for a target. The spectrometer consists of a pair of drift chambers in the 0.5 T magnetic field, inner and outer scintillation hodoscopes. Four veto counters were installed to reduce QED background. The geometrical acceptance of the spectrometer is π sr. The $p\pi^+\pi^-$ events in the final state were selected. The $\gamma d \rightarrow pn\pi^+\pi^-$ events were derived by missing mass distribution. The neutron momentum was used to determine whether the reaction was a quasi-free kinematics or not. Since the detection threshold for protons is about 0.2 GeV/c, the proton spectator reaction cannot be measured. The $N\pi$ invariant mass spectra suggest that the $\gamma d \rightarrow \Delta^{++}\pi^-n_{sp}$ reaction is dominant in the quasi-free kinematics region and the $\gamma d \rightarrow \Delta^{++}\Delta^-$ reaction may exist in the non quasi-free kinematics region. From detailed comparison of the measured data with the results of Monte Carlo simulations, we're going to deduce the total cross section for the reaction $\gamma d \rightarrow \Delta^{++}\Delta^-$.

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