

# Quasifree Photoproduction of $\pi^0$ Pairs off Nucleons bound in the Deuteron

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The study of photoproduction of pion pairs allows to investigate nucleon resonances which decay not directly to the nucleon ground state but via a cascade involving an intermediate excited state. During the last few years such reactions have been studied in quite some detail for the free proton. Their interpretation requires the measurement not only of angular - and invariant mass distributions of the pion pairs but also of polarization observables. More recently, a similar program has been launched for photoproduction off quasifree neutrons to explore the isospin degrees of freedom.

Preliminary results for the beam-helicity asymmetry measured with circularly polarized photons on unpolarized neutrons at MAMI with the Crystal Ball/TAPS setup will be discussed. Furthermore, first data have been taken at MAMI with a transversely polarized D-Butanol target to measure the target asymmetry T and the double polarization observable F for  $\gamma n \rightarrow n\pi^0\pi^0$ .

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