

Abstract Submitted
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Hard Break-Up of Two-Nucleons and QCD Dynamics of NN Interaction¹ MISAK SARGSIAN, CARLOS GRANADOS, Florida International University, Miami, FL 33199 — We investigate hard photodisintegration of two nucleons from ${}^3\text{He}$ nucleus within the framework of hard rescattering model (HRM). In HRM a quark of one nucleon knocked-out by incoming photon rescatters with a quark of the other nucleon leading to the production of two nucleons with high relative momentum. HRM allows to express the amplitude of two-nucleon break-up reaction through the convolution of photon-quark scattering, NN hard scattering amplitude and nuclear spectral function which can be calculated using nonrelativistic ${}^3\text{He}$ wave function. HRM predicts several specific features for hard break-up reaction. First, the cross section will approximately scale as s^{-11} . Also one predicts comparable or larger cross section for pp break up as compared to that of pn break-up, which is opposite to what is observed in low energy kinematics. Another result is the prediction of different spectator momentum dependencies of pp and pn break-up cross sections. This is due to the fact that same-helicity pp-component is strongly suppressed in the ground state wave function of ${}^3\text{He}$. Due to this suppression HRM predicts significantly different asymmetries for the cross section of polarization transfer NN break-up reactions for circularly polarized photons. For the pp break-up this asymmetry is predicted to be zero while for the pn it is close to $\frac{2}{3}$.

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