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Hard Photodisintegration of ^3He into pd pair[1] DHIRAJ MAHESWARI, MISAK SARGSIAN, None — In this work, we study the large angle hard photodisintegration of ^3He nucleus into proton and deuteron pair based on the framework of Hard Rescattering Model, using photons of high energies, ranging upto 15 GeV. In the Hard Rescattering Model, a quark of one nucleon knocked out by an energetic incoming photon, rescatters with a quark of the other nucleon leading to the production of a proton and deuteron pair with large relative momentum. Assuming the dominance of the quark-interchange mechanism in a hard nucleon-nucleon scattering, the model allows to write the amplitude of the break-up reaction through the convolution of photon-quark scattering, $pd \to pd$ hard scattering amplitude and nuclear spectral function which can be calculated using a nonrelativistic ^3He wave function. The photon-quark scattering amplitude can be explicitly calculated in the high energy regime. For $pd \to pd$ scattering, we use the fit of the available experimental data. One of the interesting predictions of the Hard Rescattering Model is that it tells us how the differential cross section scales with energy at large center of mass angles. For this particular case, it scales like s^{-17}.

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