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Probing QCD Structure of NN Interaction in Hard Disintegration of the Nucleon Pair[1] CARLOS GRANADOS, MISAK SARGSIAN, Florida International University — We investigate high energy photo-disintegration of pp and pn pairs from the ^3He nucleus in 90^0 center of mass scattering in the two nucleon system. These processes are unique in their ability to provide very large center of mass energy in the produced NN system at photon energies larger than few GeV. We study these reactions within QCD hard rescattering mechanism[1] and reduced amplitude approximation[2]. In both cases quark degrees of freedom are explicitly invoked to calculate the scattering amplitude. Our calculations show that the explicit account of quark degrees of freedom results to the prediction that pp pairs have larger strength of photodisintegration than the pn pairs. This is strikingly different from low energy predictions, in which due to dominance of meson exchange currents the *pp* has only 3% of the *pn* photodisintegration strength. We discuss how these reactions can be used to probe the hadron-quark transition in NN interactions.
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[2] S.J. Brodsky and J.R. Hiller, Phys. Rev. C **28**, 475 (1983);Phys. Rev. C **30**, 412(E) (1984).

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