

Abstract Submitted  
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**Hard breakup of the deuteron into two  $\Delta$  -isobars<sup>1</sup>** CARLOS GRANADOS, MISAK SARGSIAN, Florida International University — Photodisintegration of the deuteron into two  $\Delta$ -isobars at large center of mass angles is studied within the QCD hard rescattering model (HRM). According to the HRM, the reaction proceeds in three main steps: the photon knocks the quark from one of the nucleons in the deuteron; the struck quark rescatters off a quark from the other nucleon sharing the high energy of the photon; then the energetic quarks recombine into two outgoing baryons emerging at large transverse momenta. Within the HRM, the cross section is expressed through the amplitude of  $pn \rightarrow \Delta\Delta$  scattering which we evaluated based on the quark-interchange model of hard hadronic scattering. We predict that the cross section of the deuteron breakup to  $\Delta^{++}\Delta^{-}$  is 4-5 times larger than that of the breakup to the  $\Delta^{+}\Delta^{0}$  channel. Also, the angular distributions for these two channels are markedly different. These can be compared with the predictions based on the assumption that two hard  $\Delta$ -isobars are the result of the disintegration of initial  $\Delta\Delta$  components of the deuteron wave function. In this case, the angular distributions and cross sections of the breakup in both  $\Delta^{++}\Delta^{-}$  and  $\Delta^{+}\Delta^{0}$  channels are expected to be similar.

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