Abstract Submitted
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"Probing the Structure of the Deuteron at Very Short Distances"[1] FRANK VERA, WERNER BOEGLIN, MISAK SARGSIAN, Florida International University — We study the deuteron electro-disintegration at internal momenta above 700MeV/c for which first experimental data that are not dominated by final state interaction became recently available. Due to the high energy and relativistic nature of the process we developed an approach in which the scattering process is described in the light-cone reference frame where the light-front wave function is being probed. Our calculation show an appearance of a new structure in the deuteron light-front wave function which is related to the off-shell properties of the bound nucleon that does not appear in non-relativistic quantum mechanics. We present a first comparison of the new theoretical calculation with experimental data from Jefferson Lab and estimate the contribution from the above described new structure. We conclude the presentation with a discussion of the relevance of our studies to the short range structure of heavier nuclei as well as high density nuclear matter.

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