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Modeling the DVCS Cross Section with Deep Learning BRANDON KRIESTEN, JAKE GRIGSBY, JOSHUA HOSKINS, SIMONETTA LIUTI, PETER ALONZI, Univ of Virginia — Imaging the 3D partonic structure of the nucleon is a fundamental goal of every major nuclear experimental program, such as the Electron Ion Collider (EIC). Ji first proposed Deeply Virtual Compton Scattering (DVCS) as a probe for understanding the spatial distribution of the partons by fourier transform of the exchanged momentum transfer between the initial and final proton. The extraction of observables from deeply virtual exclusive reactions in a clear and concise formalism was a necessity. We recently presented a completely covariant description of the DVCS process that can be extended to any kinematics, either fixed target or collider. In our helicity formalism, we extract observables such that the dependence on Q2 is clear. Using a generalization of the Rosenbluth method, we present an extraction of Compton Form Factors from current JLab DVCS data. With our formalism and pseudo-data of an EIC generated by state of the art machine learning techniques, we show predictions of what such a machine will do for our understanding of the physical properties of the proton.

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