

Abstract Submitted
for the DNP11 Meeting of
The American Physical Society

Quark and Gluon Imaging with Meson Electroproduction at an EIC TANJA HORN, Catholic University of America — Hadrons in QCD are relativistic many-body systems with a fluctuating number of elementary quark and gluon constituents. With the 12 GeV energy upgrade at Jefferson Lab we will probe the valence quark structure of these strongly interacting systems. Beyond the valence quark region, the nucleon is expected to contain a “sea” of quark-antiquark pairs. The Electron-Ion Collider (EIC) as a frontier QCD facility would for the first time provide the kinematic reach and precision to study the fundamental structure of matter by directly probing the sea quarks and the virtual force carriers of QCD, the gluons. Information on the sea quarks and gluon structure is obtained from exclusive scattering. Measurements of, for instance, J/Ψ photo/electroproduction would allow for mapping the transverse spatial distribution of gluons in the nucleon, including the unexplored “valence-like” gluons. Production of light mesons with charge/isospin would map the transverse distributions of sea quarks and provide additional insight into their dynamical origin. In this talk I will discuss the exciting prospects of studying the transverse spatial landscape of nucleon structure using production of various vector and pseudoscalar exclusive channels.

Tanja Horn
Catholic University of America

Date submitted: 01 Jul 2011

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