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Physics opportunities at Jefferson Lab with a Neutral Particle Spectrometer in HallC[1] VLADIMIR BERDNIKOV, Catholic Univ of America, NPS COLLABORATION COLLABORATION — The unique scientific capabilities for studies of the transverse spatial and momentum structure of the nucleon offered by the HallC Jlab science program as enabled by the two-arm combination of a high-resolution neutral-particle spectrometer (NPS) and a magnetic spectrometer (HMS). It makes possible to validate QCD factorization, a cornerstone of 3D transverse momentum imaging, by measurements of the basic semi-inclusive neutral-pion cross section. In order to extract the real part of the Compton form factor without any assumptions NPS enables precision measurements of the deeply-virtual Compton scattering cross section at different beam energies. NPS intending to push the energy scale of real Compton scattering, the process of choice to explore factorization in a whole class of wide-angle processes and its extension to neutral pion photoproduction, by measurements using the combination of high precision calorimetry. I will discuss the status of the instrumentation and the experimental program enabled by the NPS, as well as new science ideas.

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