

Abstract Submitted  
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**Physics Opportunities with a Neutral Particle Spectrometer in Hall C**<sup>1</sup> TANJA HORN, Catholic University of America, NPS COLLABORATION — Hard scattering processes can probe the transverse momentum and spatial distributions of quarks, anti-quarks, and gluons in hadrons. This information is more complete than what can be obtained from studies of inclusive and elastic scattering alone. Measurements of reactions with neutral final states play an important role in this by, for instance, allowing one to probe universal features of parton distributions and to verify the hard scattering formalism in thus far unexplored regimes. At the 12 GeV Jefferson Lab Hall C with its heavily-shielded detector setup in a highly-focusing magnetic spectrometer with large momentum reach will be the optimal Hall for certain classes of deep exclusive and semi-inclusive measurements, and in particular those requiring precision measurements, for instance, high quality L/T separations. The addition of a neutral particle detection facility would significantly augment these scientific capabilities. In this talk we will give an overview of the scientific program enabled by such a facility, and discuss its requirements and plans.

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