

Abstract Submitted
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Inclusive Electron-Nucleus Scattering at $x > 1$ and High Q^2

DONAL DAY¹, University of Virginia — Inclusive electron scattering from nuclei provides a rich, yet complicated mixture of physics that has yet to be fully exploited. The cross section at high momentum transfer arises from several reactions including quasi-elastic scattering from nucleons and deep inelastic scattering from the quark constituents of the nucleons. Inclusive electron scattering presents the opportunity to investigate the transition from a regime where nucleon degrees of freedom hold sway to one where the more fundamental QCD interactions, involving quarks and gluons, are expected to dominate. Data at large values of x over a range of Q^2 can be employed to study a wide variety of topics: nuclear momentum distributions, medium modifications of nucleon properties, the influence of final state interactions and the approach to y -scaling, the strength of nucleon-nucleon correlations at large x , and the approach to x -scaling. We recently completed such an experiment in Jefferson Lab's Hall C in which 6 GeV electrons were scattered from both few-body nuclei and heavy nuclei at high momentum transfers. This experiment significantly extended the kinematic region at high momentum transfer and large (negative) y (corresponding to large Bjorken x), explored in previous experiments. After a brief statement of the physics motivation for this experiment, we will present preliminary results.

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