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Precise Measurement of the Nuclear Dependence of Structure Functions in Light Nuclei JASON SEELY, Laboratory for Nuclear Science, Massachusetts Institute of Technology, E03-103 COLLABORATION — The EMC effect has been with us for over 20 years. During this time, the nuclear dependence of the structure functions, and thus quark distributions, has been studied with much success. However, the bulk of the experimental effort has been to measure the effect in heavy nuclei where it has the same x dependence and differs only in magnitude. Calculations predict large differences in both the magnitude and x-dependence of the EMC effect in ^{3}He and ^{4}He and precise measurements of the EMC effect in these nuclei could be used to distinguish between existing models. To that end, E03-103 has measured the inclusive electron scattering cross-section on ^{1}H, ^{2}H, ^{3}He, and ^{4}He, as well as the heavier targets Be, C, Cu, and Au. These data will provide the first measurement of the EMC effect on ^{3}He above $x > 0.5$, and improve upon the existing measurement of the effect on ^{4}He. Preliminary results for the EMC ratios on ^{3}He and ^{4}He will be presented.

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