

Abstract Submitted  
for the DNP12 Meeting of  
The American Physical Society

**New results on the the nuclear dependence of the EMC effect at large  $x_B$**  AJI DANIEL, University of Virginia, JEFFERSON LAB E03-103 COLLABORATION — Protons and neutrons are complex bound states of quarks and gluons, held together by the strong interactions of quantum chromodynamics (QCD). Their structure may be modified inside of the dense environment of a nucleus. Detailed study of the modification of hadron properties in the nuclear environment provide a wealth of information on the nature of QCD. These modifications (known as the EMC effect) have been extensively studied, since the European Muon Collaboration discovered in 1983 that the structure functions and thus the quark distributions in nuclei are modified compared to those of free nucleons. Jefferson lab experiment E03-103 was designed for a precision measurement of the EMC effect in light nuclei, where reliable calculations can be performed, and to improve the precision on the EMC ratio of medium to heavy nuclei. Results from this experiment suggest that the nuclear dependence of the high  $x_B$  quark distribution may depend on the local nuclear environment, rather than being a purely bulk effect. In this talk, I will discuss the new results from the E03103 experiment and the insights being obtained to the cause of the EMC effect from these studies.

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Date submitted: 06 Jul 2012

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