

PR12-11-107: *In Medium Nucleon Structure Functions, SRC and the EMC effect*

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While by now the EMC effect has been observed in many experiments, and its possible origins a whole literature in itself, few new insights have been gained beyond a suggestion that part of the effect may be connected to short range correlations in the nucleus. This proposal marks an important attempt to actually differentiate between possible mechanisms (such as modification of the nucleon structure functions in the nuclear medium, and its relation to the nucleon virtuality) in a transparent way. The authors indicate that extraction of in-medium nucleon structure functions is theoretically complicated by the fact that the deuteron wave function is not well known at the large momenta corresponding to short range correlations, and that the final-state interactions are not precisely understood. However, several groups are engaged on studies that provide theoretical support for this proposal. The various frameworks discussed are not always consistent with each other. Consequently, the proponents need to differentiate between these approaches and set out what can be learnt in each case. Nevertheless, the depth of theory involvement is highly significant and one of the proposal's strengths. Such a level of commitment will need to be refreshed, later in this decade once the data have been taken, to ensure a robust interpretation of the results.

This is a well motivated experiment that has to be done, and one JLab is well placed to perform.