

Understanding the EMC Effect Through Tagged Processes with ALERT

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Spectator tagged hard processes can provide insight into the origins of the EMC Effect by identifying the struck nucleon. A comprehensive program of experiments on light nuclei (deuterium and ^4He) at JLab using the CLAS12 spectrometer and a Low Energy Recoil Tracker (ALERT) will detect the low energy nuclear spectator system (p, ^3H and ^3He) in a variety of hard scattering processes. Tagged deep inelastic scattering will provide stringent tests leading to clear differentiation between the many models describing the EMC Effect by accessing the bound nucleon virtuality through its initial momentum at the point of interaction. Furthermore, spectator-tagged deeply virtual Compton scattering will provide a measurement of off-forward EMC Effect as a new indicator of potential nuclear modifications of a bound nucleon. We will discuss details of the ALERT detector and measurements that will help understand the origin of the EMC Effect.

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