A new generation of experiments taking advantage of the upgraded electron beam facility at Jefferson Laboratory aims to explore the three-dimensional partonic structure of the proton with unprecedented precision.

One of those is the CEBAF Large Acceptance Spectrometer (CLAS12), where semi-inclusive deep-inelastic scattering (SIDIS) events can be detected over a wide kinematic range. In SIDIS events, the incoming electron scatters off a quark in the proton which subsequently hadronizes into a detected final state. The quantum numbers of the hadronic final state are correlated to the quantum numbers of the parent quark and can therefore be used to extract information about the partonic content of the nucleon.

Arguably, most information about parton distribution functions has been extracted from final states, where a single, spinless hadron such as a pion or kaon has been detected. Using more complex final states that can carry angular momentum quantum numbers, such as hadron-pairs or polarized hyperons, allows access to spin orbit correlations the hadronization process and a more targeted access to complex dynamics inside the proton.

This talk will discuss di-hadron channels to extract parton distributions from proton-proton collisions at RHIC, SIDIS data taken at CLAS12 as well as the measurement of the corresponding fragmentation functions (FFs). Fragmentation functions describe the formation of hadrons from quarks and can be measured in e+e- annihilation. Here measurements of di-hadron FFs at the B-factory Belle will be discussed.

Friday November 22, 2019
2:00 PM
DeLoach Hall, Room 212

Refreshments Will Be Served