

Meson structure

Wednesday, December 11, 2024 9:50 AM (15 minutes)

This talk will discuss upcoming tagged deep inelastic scattering (TDIS) measurements at Jefferson Lab, which will directly probe the elusive mesonic content of the nucleon. The TDIS experiment will measure low momentum recoiling (and spectator) hadrons in coincidence with deep inelastically scattered electrons from hydrogen (and deuterium) targets. Through use of a recoil detector, a tagging technique will enhance deep inelastic scattering from partons in the meson cloud (also known as the Sullivan process). TDIS aims to extract the pion and kaon structure functions (SF) in the valence regime. Existing world data on light meson structure is extremely sparse and the TDIS measurements will be crucial for shedding light on such topics as emergent hadron mass. A 22GeV beam at JLab would offer the opportunity for an extended phase space for the TDIS SF measurements, which would vastly increase the data available above the resonance region and resultantly strengthen the impact which TDIS data could have for meson PDF extractions. Furthermore a 22GeV beam would unlock the opportunity to perform SIDIS on the pion via the Sullivan process, for the first time, which would allow for pion TMD studies. TDIS with a 22GeV beam would also unlock the opportunity for pion DVCS via the Sullivan process, which is also not possible with an 11GeV electron beam.

Presenter: MONTGOMERY, Rachel (University of Glasgow)

Session Classification: Spatial Structure, Mechanical Properties, and Emergent Hadron Mass