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## Measurement of Tagged Deep Inelastic Scattering in Hall A of Jefferson Lab

*Saturday, 3 September 2016 17:00 (20 minutes)*

A tagged deep inelastic scattering experiment is planned in Hall A of Jefferson Lab, in which the mesonic content of the nucleon will be probed directly. The experiment will measure low momentum recoiling (and spectator) protons in coincidence with deeply inelastically scattered electrons from hydrogen (and deuterium) targets, covering kinematics of  $8 < W^2 < 18\text{GeV}^2$ ,  $1 < Q^2 < 3(\text{GeV}/c)^2$  and  $0.05 < x < 0.2$ . The tagging technique will enhance deep inelastic scattering from partons in the meson cloud and provide access to the pion structure function via the Sullivan process. The setup will utilise a  $50\mu\text{A}$ ,  $11\text{GeV}$  electron beam incident upon a gaseous target. The target will be either hydrogen or deuterium, to measure either charged or neutral pion cloud. The target will be surrounded by a GEM-based radial time projection chamber (RTPC), having a length of  $400\text{mm}$  and a radius of  $15\text{cm}$ , and optimized for measuring protons spanning momenta of  $60\text{--}400\text{MeV}/c$ . A solenoid magnet will encapsulate both the RTPC and the target. The Hall A Super BigBite spectrometer will be used to measure the scattered electrons. An overview of the measurement, experimental setup, simulations and projected results will be given.

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