Contribution ID: **111** Type: **Oral Presentation**

Implications for Diquark Investigations from the Measurement of Proton Multi-dimensional Multiplicity Ratios

In the non-perturbative regime of Quantum Chromodynamics, the quark and gluon dynamics in a nuclear medium can be studied through the hadronization process. The deep inelastic electron scattering experiments are a clean way to liberate a bound quark from a nucleon in the medium and study the hadronization process. The E02-104 experiment at the Thomas Jefferson National Accelerator Facility used a 5-GeV electron beam incident on target nuclei of deuterium, carbon, iron, and lead. One observable for investigating the formation of a color-neutral hadron from a free quark (or multiple quarks) is the multiplicity ratio, which represents the normalized yield of hadrons produced in a heavy nucleus relative to that from deuterium. This talk will present results of proton multiplicity ratios in 1D, 2D, and 3D dependencies with respect to Q^2, ν, z_h, and p_T^2 and discuss possible evidence for direct diquark scattering.

This work is supported in part by the U.S. DOE award \#DE-SC0020365.

Author: Dr WOOD, Michael (Canisius University)

Presenter: Dr WOOD, Michael (Canisius University)

Session Classification: Parallel session

Track Classification: Hadron Structure, Spectroscopy and Dynamics