

## Search for Exotic Gluonic States in the Nucleus via Polarized Deep Inelastic Scattering

*Thursday, 13 September 2018 17:40 (20 minutes)*

Although crucial to our understanding of nuclear structure, probes of gluonic components in the nucleus can be elusive, as gluons are accessed only indirectly in deep inelastic scattering. In 1989, Jaffe and Manohar identified a gluonic transversity structure function  $\Delta(x, Q^2)$  which is sensitive to exotic gluonic states in the nucleus, and is accessible via an inclusive measurement on a transversely polarized nucleus of spin greater than or equal to 1. We are developing an experiment to utilize Jefferson Lab's 12 GeV electron beam with a transversely polarized  $^{14}\text{N}$  target to mount a first measurement of the Delta structure function. The Jefferson Lab experiment will probe Delta from from  $x$  of 0.3 to 0.05, but the vast kinematic reach of an electron-ion collider would allow a thorough probe of this quantity. We will discuss the impact of exciting new lattice QCD results on this quantity, our proposal to measure  $\Delta(x, Q^2)$  at JLab, and what a measurement might look like at an EIC.

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**Session Classification:** Future Facilities and Experiments

**Track Classification:** Future Facilities and Experiments