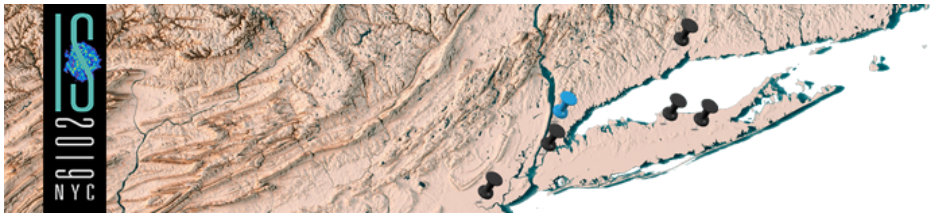

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Partonic spatial imaging at an electron-ion collider

Wednesday, 26 June 2019 18:10 (20 minutes)

The 2015 U.S. Nuclear Physics Long-Range Plan recommended the realization of an electron-ion collider (EIC) as the next large construction project in the United States. A U.S.-based EIC has also recently been endorsed by the U.S. National Academy of Sciences.
With the design of an EIC, advancements in theory and further development of phenomenological tools, we are now preparing for the next step in subnuclear tomographic imaging. The collider's large range of center-of-mass energy, in combination with very high luminosity and polarization of both the lepton and the hadron beams, will open a unique opportunity for very high precision measurements of both cross sections and spin-asymmetries. This will allow us for a detailed investigation of the partonic substructure of hadrons in multi-dimensions, as well as addressing the role of orbital angular momentum with respect to the nucleon spin.
Generalized parton distributions (GPDs) describe the multi-dimensional partonic structure of a nucleon in coordinate space, providing new information about the internal dynamics of quarks and gluons. Extraction of GPDs from hard exclusive processes and all related probes, is a pillar of the EIC science program.
This talk will highlight key measurements, experimental challenges, and finally discuss the EIC's expected impact over the current knowledge of the partonic multidimensional structure of hadrons in space coordinates.

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