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Type: **Talk**

Prospects for TMDs & GPDs with Detector 1 at the EIC

Tuesday 2 August 2022 11:20 (30 minutes)

The Electron Ion Collider (EIC) to be built by JLab and BNL will be unique in colliding polarized electrons off polarized protons and light nuclei, providing the spin degrees of freedom essential to pursue its physics program to study spin structure, multi-dimensional tomographic images of protons and nuclei, and collective effects of gluons in nuclei. The unprecedented luminosity of the EIC, coupled with its flexibility on beam energy and species, will allow detailed three-dimensional imaging of the gluon and sea quark distributions, via both TMDs and GPDs, and to explore correlations amongst them. The hermetic detector will provide the capability to perform similar studies in nuclei, providing precise tomographic images of their quark-gluon landscape, ranging from light few-body nuclei to the heavy nuclei, and could uncover how TMDs and GPDs change when gluons display collective behavior at the high densities. Studies performed by the ECCE and ATHENA collaborations, now working together to develop the first detector at the EIC, will be presented to demonstrate the reach of the upcoming physics program.

Preferred track

Hadron Structure

Subfield

Nuclear experiment

Attending in-person?

Yes

On behalf of collaboration?

EIC Detector-1

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