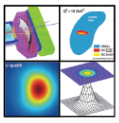

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Studies of the nucleon structure in back-to-back SIDIS

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The study of target fragmentation in Semi-Inclusive DIS is widely accepted as one of the main unique features of the Electron Ion Collider (EIC). Due to the lack of the analysis framework the current physics program of the EIC doesn't cover observables involving hadrons produced in the target fragmentation region, which can shed light on the non-perturbative structure of the nucleon.
In recent pioneering studies involving the target fragmentation by Anselmino and Co. it has been shown that new beam–spin asymmetry appears in deep inelastic inclusive lepto-production at low transverse momenta when a hadron in the target fragmentation region is observed in association with another hadron in the current fragmentation region. First preliminary measurements of that asymmetry are already available from JLab. The EIC provide much wider kinematical coverage and better separation of current fragmentation and target fragmentation regions, and due to high polarization of electrons and protons is a natural choice for measurements of different spin dependent observables in back-to-back or b2b SIDIS.
In this talk, we present a program for extending the studies of the nucleon structure beyond the traditional current fragmentation, when a hadron in the target fragmentation region is observed in association with another hadron in the current fragmentation region.

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