

SIDIS in the target fragmentation region at small x

Wednesday 25 June 2025 09:25 (25 minutes)

Single inclusive hadron production in Deep Inelastic Scattering serves as standard candle observable for probing the 3D partonic structure of proton or nuclear targets. In this talk, I will focus on particle production in the target fragmentation region. At moderate Bjorken- x , this kinematic regime is described by the framework of transverse momentum dependent (TMD) fracture functions. To extend the study of fracture functions into the small- x region, we consider the differential cross-section for single-inclusive jet/hadron production with transverse momentum P_t in DIS, mediated by a longitudinally polarized virtual photon of virtuality $Q^2 \gg P_t^2$. We show that this cross-section is not power-suppressed in P_t/Q , and can be factorized in terms of TMD quark and gluon fracture functions at small x , for which the Color Glass Condensate provides explicit analytic expressions.

Authors: SALAZAR, Farid (Institute for Nuclear Theory, University of Washington); Dr CAUCAL, Paul (Subatech, Nantes Université, IN2P3)

Presenter: SALAZAR, Farid (Institute for Nuclear Theory, University of Washington)

Session Classification: Wednesday Session