PANIC2021 Conference



Contribution ID: 329

Type: Talk

TMD cross-section factorization for dijet production at the EIC

Wednesday 8 September 2021 13:15 (15 minutes)

We use soft collinear effective theory (SCET) to study a dijet production process in deep-inelastic-scattering (DIS), measuring the imbalance of the two hard probes in the Breit frame. In order to achieve factorization of the transverse momentum dependent (TMD) cross-section, we need to introduce a new soft function that we calculate at one-loop, regulating rapidity divergencies with the delta-regulator. We use consistency relations with heavy meson pair production in DIS to extend the anomalous dimension of the dijet soft function to three loops. We also provide phenomenological discussion and preliminary plots for this process, which is expected to be measured at the future EIC. The study of these processes could provide new knowledge of the TMD gluon distributions, to which they are sensitive.

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Session Classification: QCD, spin physics and chiral dynamics

Track Classification: QCD, spin physics and chiral dynamics