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QCD evolution of the gluon Sivers function in heavy flavor dijet production at the Electron-Ion Collider

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Using Soft-Collinear Effective Theory, we develop the transverse-momentum-dependent factorization formalism for heavy flavor dijet production in polarized-proton-electron collisions. We consider heavy flavor mass corrections in the collinear-soft and jet functions, as well as the associated evolution equations. Using this formalism, we generate a prediction for the gluon Sivers asymmetry for charm and bottom dijet production at the future Electron-Ion Collider. Furthermore, we compare theoretical predictions with and without the inclusion of finite quark masses. We find that the heavy flavor mass effects can give sizable corrections to the predicted asymmetry.

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