## **Resummation, Evolution, Factorization 2022**



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## Production of J/psi in electron-proton collision in kT factorization.

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We calculate the differential cross section for the production of J/psi in electron-proton collision within the formalism of QCD kT factorization. We present distributions in transverse momentum and rapidity for COM-PASS, JLab, HERMES and EIC centre of mass energies. Our results are compared with the experimental data for production J/psi at electron-proton scattering experiments. We predict the total and differential cross section for the future Electron-Ion Collider (EIC) experiment. Our study is based on the off-shell photon-gluon fusion subprocess, where non-zero transverse momentum of the gluon is considered. We use the improved colour evaporation model (ICEM) for the heavy quarkonium production. We use different unintegrated parton distribution function (uPDFs) driven by the Ciafaloni–Catani–Fiorani–Marchesini (CCFM) evolution equation at low . This is the clean process to clearly understand and to have constraint on gluon uPDFs. This study also highlights the production models of heavy quarkonium and their validity at different production processes.

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