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Gluon TMDs in quarkonia production

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Production of quarkonia bound states from hadronic collisions can be a useful handle to map the probability density distributions for gluons inside protons.
We derive the factorization theorem for the pT-spectrum of color-singlet quarkonia production in terms of gluon transverse-momentum-dependent parton distribution functions (TMD PDFs).
With this tool we predict cross sections up to NNLL level of accuracy for the LHC and the AFTER@LHC experiments, exploring different configurations for the gluon and the target polarization.
After completing a framework in which evolution of TMDs is incorporated, we will be able to extract new information about the non-perturbative structure of the (un)polarized gluon TMD PDFs from future experimental measurements.

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