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## Transverse momentum dependent splitting functions in the Parton Branching method

*Saturday, 9 July 2022 09:30 (15 minutes)*

The Parton Branching (PB) approach provides a way to obtain transverse momentum dependent (TMD) parton densities. Its equations are written in terms of splitting functions and Sudakov form factors and can be solved with Monte Carlo methods. Even though the transverse momentum is known in every branching, the PB method currently uses the DGLAP splitting functions, which assume that the parton has no transverse momentum. We propose to extend the PB method by including TMD splitting functions, a concept from high-energy factorization.

We present the evolution equations and the connection to DGLAP evolution equations and BFKL evolution equation. We show their solutions obtained with a Monte Carlo Simulation and show numerically the effects that TMD splitting functions have on the TMD distribution functions.

### In-person participation

Yes

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