## **EPS-HEP2023** conference



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## Dependence of Z + multi-jet predictions on the merging scale in TMD merging

Monday 21 August 2023 16:45 (15 minutes)

Multi-jet events at various kinematic regimes are subject of wide scaled studies in the LHC program and future colliders. Merging of TMDs, parton showers and matrix elements is a delicate matter that is sensitive to the process and observable of interest. We present studies of the merging scale in the TMD merging framework, using the Cascade3 Monte Carlo generator. The merging scale separates hard and soft partonic emissions, and serves as an extension of the concept of factorization scale which allows one to treat exclusive production channels. Differential jet rates of Z plus jet events at LHC energies have been investigated to determine the dependence of theoretical predictions on the merging scale as a function of the DY mass, including the case of high-mass DY, and analyze the associated theoretical systematics.

## **Collaboration / Activity**

n.a.

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