

DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



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Precision phenomenology with multi-jet final states at the LHC

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Multi-jet rates at hadron colliders provide a unique possibility for probing Quantum Chromodynamics (QCD), the theory of strong interactions. By comparing theory predictions with collider data, one can directly test perturbative QCD, extract fundamental parameters like the strong coupling and search for physics beyond the Standard Model. Recent developments enabled lifting three-jet cross-sections to next-to-next-to-leading order (NNLO) in QCD. I will present numerical results for three-to-two jet ratios and event shapes at the Large Hadron Collider (LHC). Then, I will discuss the first extraction of the strong coupling constant from event shapes at the LHC with NNLO QCD accuracy.

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