

Towards 2 -> 3 NNLO QCD calculations

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Precise predictions for total and differential cross sections at hadron colliders became an important corner stone of the LHC physics. The lack of new 'smoking-gun' physics signals requires precise comparisons between measurements and Standard Model predictions to get a handle on new physics effects. Tremendous efforts have been made to push perturbative calculations to higher orders such that NNLO QCD calculations are now state-of-art for most $2 \rightarrow 1$ and $2 \rightarrow 2$ hard scattering processes. Upcoming five-point two-loop amplitudes and refined subtractions schemes for real radiation contributions allow first steps in the direction of $2 \rightarrow 3$ scattering processes. I present novel NNLO QCD results for $2 \rightarrow 3$ processes obtained with the Sector-improved Subtraction Scheme and their phenomenological application.

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