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Azimuthal Decorrelation in Z+jet events at the LHC

We consider the resummation of large logarithms in the distribution of the azimuthal angle between a Z boson and a jet produced in hadron-hadron collisions. The recombination shceme used in the reconstruction of the jets has a strong impact on the NLL resummation. Specifically when using the E-scheme (four-momentum addition of constituents of the jet), the resummation is highly non-trivial due to the presence of non-global and clustering logarithms. We compute these logarithms at two loops as a function of the jet radius and provide an estimate of the all-orders NLL resummed distribution for this observable. By including fixed-order corrections from Monte Carlo calculations we extend the accuracy of our distribution to NNLL in its fixed-order expansion. We compare our predictions with Monte Carlo parton showers and with experimental data from the CMS collaboration.

Submitted on behalf of a Collaboration?

No

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