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Subleading high-energy logarithms and NLO accuracy for $W + \text{jets}$

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Several important processes and analyses at the LHC are sensitive to higher-order perturbative corrections beyond what can currently be calculated at fixed order. One important class of large logarithmic corrections are so-called high-energy logarithms which appear when the centre-of-mass energy of a QCD collision is much larger than the transverse momenta of the observed jets.

In this talk I will describe the High Energy Jets (HEJ) framework, which includes the dominant high-energy logarithms to provide all-order predictions for several relevant LHC processes. I will summarise the results of a recent study of W boson production in association with at least two jets (arXiv:2012.10310), where we introduced a class of next-to-leading logarithmic improvements to the HEJ description of this process, and we performed the first bin-by-bin matching of HEJ to NLO accuracy.

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