

NLO Multijet Merging for Higgs Production

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The discovery of the Higgs boson in 2012 by ATLAS and CMS Collaborations at the Large Hadron Collider (LHC) opens a new era to particle physics, making processes involving Higgs production interesting and essential in many ways. General-purpose Monte Carlo event generators are essential simulation tools for experimental and theoretical physicists. Merging parton shower approximations with next-to-leading order (NLO) matrix element corrections are implemented in the Monte Carlo event generator Herwig 7. We perform simulations of electroweak Higgs boson production in full calculation using the HJets matrix element library. The NLO multijet merging predictions are compared with NLO plus parton shower (NLOPS) matched calculations. This research is under review by The European Physical Journal C. The preprint can be found at arXiv:2109.03730 (2021).