

Automated NNLL+NLO Resummation for Jet-Veto Cross Sections (20+10min)

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In electroweak-boson production processes with a jet veto, higher-order corrections are enhanced by logarithms of the veto scale over the invariant mass of the boson system. We resum these Sudakov logarithms at next-to-next-to-leading logarithmic (NNLL) accuracy and match our predictions to next-to-leading order (NLO) fixed-order results. The calculation is performed in an automated way, for arbitrary electroweak final states and

in the presence of kinematic cuts on the leptons produced in the decays of the electroweak bosons. The resummation is based on a factorization theorem for the cross sections into hard functions, which encode the virtual corrections

to the boson production process, and beam functions, which describe the low- p_T emissions collinear to the beams. The one-loop hard functions for arbitrary processes are calculated

using the MadGraph5_aMC@NLO framework, while the beam functions are process independent. We perform the resummation for a variety of processes, in particular for $W+W^-$ pair production followed by leptonic decays of the W bosons.

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