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Threshold resummation for VV pair production to NNLO+NNLL at the LHC (Zoom)

Tuesday 15 July 2025 17:00 (20 minutes)

We perform the threshold resummation for massive vector boson pair production processes (ZZ and W^+W^-) in hadron collisions to Next to Next Leading Log accuracy. The resummed cross-sections are then matched with NNLO fixed order results, which are obtained using the MATRIX code. We present our results for the invariant mass distribution to NNLO+NNLL accuracy in QCD for the current LHC energies. The NNLL contributions enhance the cross section by a few per cent in the high invariant mass regions. In these regions, the uncertainties due to unphysical scales (μ_R and μ_F) in the fixed-order results, 4.6\% for ZZ and 4.2\% for WW (at $Q = 1.3$ TeV) get reduced to
3.2\% and 3.0\%, after resummation.

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