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Electroweak Corrections to Gauge-Boson Pair Production at the LHC

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Vector-boson pair production is of great phenomenological importance at the Large Hadron Collider. These processes not only constitute an important irreducible background to Higgs and New Physics searches; since the leptonic decay products can be reconstructed well, pair production of weak bosons provides an excellent opportunity to probe the non-abelian structure of the Standard Model at high energies and may give hints to the existence of anomalous trilinear and quartic couplings, which are predicted to have sizable effects at high energies. We present the calculation of the full next-to-leading order electroweak corrections to WZ and Z-pair production. We discuss the impact of the corrections on the total cross sections as well as on relevant differential distributions. The resulting electroweak corrections are negative and strongly increase with increasing transverse momenta and lead to significant modifications of rapidity and angular distributions.

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