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Electroweak corrections to double Higgs production at the LHC

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We present the results for the complete next-to-leading order electroweak corrections to pp ⟶ HH at the Large Hadron Collider, focusing on the dominant gluon-gluon fusion process. While the corrections at the total cross-section level are approximately −4%, those near the energy of HH production threshold exceed +15%, and corrections at the high-energy region are around −10%, leading to a shape distortion for the differential distributions. Our findings substantially diminish the theoretical uncertainties associated with this pivotal process, providing valuable input for understanding the shape of the Higgs boson potential upon comparison with experimental measurements.

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