

Second Order Corrections to Diphoton Transverse Momentum Distribution at the LHC

Photon pair production is an important benchmark process at the LHC, entering Higgs boson studies and new physics searches. It has been measured to high accuracy, allowing for detailed studies of event shapes in diphoton final states. In this talk, I present the second-order QCD corrections ($\mathcal{O}(\alpha_s^3)$) of the production of a photon pair at non-zero transverse momentum. Comparison with the ATLAS data of arXiv:2107.09330 [hep-ex] is presented and the phenomenological impact is studied in detail.

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