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Type: Parallel session talk

Monte Carlo event generation for off-shell top quark pair production with dileptonic decays at NLO+PS with mg5_aMC@NLO

Tuesday 22 August 2023 17:20 (20 minutes)

Duration: 15'+5'

The simulation of processes involving heavy unstable particles, like the top quark, holds significant importance in LHC physics. In this contribution, we address the exclusive simulation of top-quark pair production with dileptonic decays, including the non-resonant diagrams, interferences, and off-shell effects arising from the finite top-quark width. Our simulations, utilizing the mg5_aMC@NLO program, achieve next-to-leading order accuracy in QCD and is matched to parton showers through the MC@NLO method. We present phenomenological results with direct relevance to the 13 TeV LHC. We benchmark the impact of the off-shell effects on representative distributions relevant for top mass extractions, and compare our simulation to lower accuracy simulations and to data.

Collaboration / Activity

hep-ph

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