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## Monte Carlo Modelling and Tuning in CMS

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A new set of CMS underlying-event tunes is presented for the PYTHIA 8 event generator. The tunes use the NNPDF3.1 parton distribution functions at leading (LO), next-to-leading (NLO), or next-to-next-to-leading (NNLO) order in perturbative QCD, and the strong coupling and PDF evolution at LO or NLO. Comparisons of the predictions of the new tunes are provided for observables sensitive to the global underlying event, to soft multiparton interactions, and to double-parton scattering contributions, as well as for observables measured in various final states, such as multijet, Drell-Yan, and top quark-antiquark pair production. The measurements characterizing the properties of the underlying event in top quark pair production and the Drell-Yan processes are also presented.

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