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A Study of the Top Mass Determination Using New NLO+PS generators

We estimate the top-quark mass extraction uncertainty due to Monte Carlo modeling of top-pair production and its leptonic decay. Using three different NLO+PS generators based on the POWHEG method implementing an increasingly precise treatment of $t\bar{t}$ production and decay, including `hvq` and `bb4l`, and two different PS implementations we obtain predictions for various kinematic distributions suitable for extraction of the top mass proposed in the literature. Assuming that one of the generators reproduces the data fully, we estimate the shift in the extracted top mass using the other generators. We find that the mass shifts are comparable if not larger then the current experimental uncertainty on the top mass extraction.

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