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Defining the Monte Carlo top quark mass parameter

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The currently most precise top quark mass determinations, called direct measurements, represent determinations of the Monte-Carlo top quark mass parameter from observables which can only be simulated and for which no first principles QCD computations exist. This leads to an overall ambiguity of the interpretation of these measurements (in terms of a well-defined top mass renormalization scheme) of around 500 MeV. I show what it needed to address this problem in a systematic way in the context of Monte-Carlo-based top mass measurements. I demonstrate the approach explicitly for the case of the 2-jettiness distribution for top pair production at electron-positron collisions.

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