

High Energy Physics - Experiment

Precision Measurements of the Top Quark Mass

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The experimental status of measurements of the top quark mass is reviewed. After an introduction to the definition of the top quark mass and the production and decay of top quarks, an in-depth comparison of the analysis techniques used in top quark mass measurements is presented, and the systematic uncertainties on the top quark mass are discussed in detail. This allows the reader to understand the experimental issues in the measurements, their limitations, and potential future improvements, and to comprehend the inputs to and formation of the current world average value of the top quark mass. Its interpretation within the frameworks of the Standard Model and of models beyond it are presented. Finally, future prospects for measurements of the top quark mass and their impact on our understanding of particle physics are outlined.

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