Cosmology meets Particle Physics: Ideas & Measurements

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Precise Prediction for the W boson mass in models beyond the SM

Electroweak precision observables are of utmost importance for testing and constraining physics beyond the Standard Model (SM). The indirect constraints on new physics obtained from precision observables are complementary to the direct searches for new physics carried out at the LHC and elsewhere. The MW-MZ interdependence is highly sensitive to quantum effects

from the entire particle spectrum of a given model. In order to

fully exploit the improved experimental accuracy expected at the LHC,

a precise theoretical prediction for the W boson mass in various models beyond the SM is desired.

We present results for the W boson mass prediction in the MSSM with complex parameters, including all known higher-order corrections of SM- and SUSY-type.

The implications of LHC search limits on electroweak precision observables are discussed.

Primary author: ZEUNE, Lisa (DESY)

Presenter: ZEUNE, Lisa (DESY)