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The top quark electro-weak couplings after LHC Run 2

Recent measurements at the Large Hadron Collider allow for a robust and precise characterisation of the electro-weak interactions of the top quark. We present the results of a global analysis at next-to-leading order precision including LHC, LEP/SLD and Tevatron data in the framework of the Standard Model Effective Field Theory. We include a careful analysis of the impact of correlations among measurements, as well as of the uncertainties in the Effective Field Theory setup itself. We find remarkably robust global fit results, with central values in good agreement with the Standard Model prediction, and 95% probability bounds on Wilson coefficients that range from ±0.35 to ±8 TeV−2. This result represents a considerable improvement over previous studies, thanks to the addition of differential cross-section measurements in associated production processes of top quarks and neutral gauge bosons. We also present new projections for future runs of the LHC with higher luminosity (the so-called HL-LHC) and a future electron-positron collider. Paper: https://link.springer.com/article/10.1007/JHEP02(2022)032 And report: https://arxiv.org/abs/2204.01882, http://arxiv.org/abs/2205.02140

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