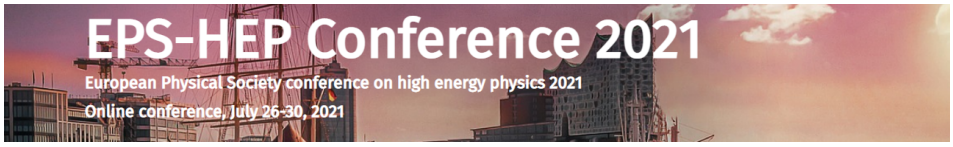

Contribution ID: **1029** Type: **Parallel session talk**

The top quark electro-weak couplings after LHC Run 2

Friday 30 July 2021 10:50 (15 minutes)

As the heaviest particle of the model, with a mass close to the electroweak scale, the top quark is an interesting candidate to look for hints of new physics. The electroweak couplings of the top quarks are specially relevant in many extensions of the Standard Model. Indeed, as the top quark was not produced in the previous generation of electron-positron colliders most of its electro-weak couplings can only be constrained with the data from the Large Hadron Collider. In order to analyze if there is still room for new physics in the electro-weak couplings of the top quark, we perform a global fit to these couplings. Following the Standard Model Effective Field Theory formalism we have constrained the Wilson coefficients of the dimension-six operators that affect the top quark electro-weak couplings. In this work we consider, for the first time, the QCD corrections at NLO for most of the processes included. Furthermore, we have included recently measured processes, such as tZq and $t\gamma q$, and the first differential measurements in $t\bar{t}Z$ and $t\bar{t}\gamma$ production. A special effort is made to understand the uncertainties due to the truncation of the EFT expansion and due to the poorly known correlations among measurements. As the main result, we present a robust set of bounds on the relevant operator coefficients, which represents a significant improvement with respect to previous results.
The results and paper are being finalized and we plan to upload the pre-print in May 2021.

Collaboration / Activity

Global EFT fits

First author

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