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The Higgs-Gauge Legacy of the LHC

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The effective Lagrangian expansion provides a model independent framework to study effects of new physics at the electroweak scale. To make full use of LHC data in constraining higher-dimensional operators we need to include both the Higgs and the electroweak gauge sector in the analysis. We first present a combined analysis of the relevant diboson production LHC results to set the strongest available constraints on triple gauge boson couplings. The bounds that we derive are already stronger than the ones obtained from LEP data. Next, we show how they can be combined with Higgs measurements at the LHC to further constrain the multi-dimensional space of dimension–six Wilson coefficients. We conclude illustrating how this Higgs–TGV pattern of correlated deviations from Standard Model predictions and couplings can be different for theories of new physics based on a non-linear realization of the SU(2)L×U(1)Y symmetry.

Primary author(s) : GONZALEZ-FRAILE, Juan (Universitat Heidelberg)

Presenter(s) : GONZALEZ-FRAILE, Juan (Universitat Heidelberg)

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