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Triboson production in the SMEFT

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The processes of triboson production in high-energy proton–proton collisions provide a unique mean to probe the quartic interactions between EW gauge bosons and to perform indirect searches for physics beyond the Standard Model. Despite their small cross-sections, the production of □□□, □□□, □□□ (□ = □ or □) at centre-of-mass energy of 13 TeV at the LHC has recently been observed by the ATLAS and CMS experiments. In this talk I'll present a SMEFT analysis based on total rates and differential distributions of triboson processes and show that NLO QCD corrections have striking effects on dimension-6 operators.
I'll present constraints on a subset of SMEFT operators from a global EW fit including electroweak precision observables (EWPOs), diboson and triboson processes and show that, when quadratic EFT contributions are included, the diboson and triboson production at LHC can significantly improve the bounds in the directions left unconstrained by EWPOs.

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