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A sensitivity study of VBS and diboson WW to dimension-6 EFT operators at the LHC

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We present a parton-level study of electro-weak production of vector-boson pairs at the Large Hadron Collider, establishing the sensitivity to a set of dimension-six operators in the Standard Model Effective Field Theory (SMEFT). Different final states are statistically combined, and we discuss how the orthogonality and interdependence of different analyses must be considered to obtain the most stringent constraints. The main novelties of our study are the inclusion of SMEFT effects in non-resonant diagrams and in irreducible QCD backgrounds, and an exhaustive template analysis of optimal observables for each operator and process considered. We also assess for the first time the sensitivity of vector-boson-scattering searches in semileptonic final states.

In-person participation

Yes

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