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Impact of dimension-eight SMEFT operators in the EWPO and Triple Gauge Couplings analysis in Universal SMEFT

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We perform a complete study of the electroweak precision observables and electroweak gauge boson pair production in terms of the SMEFT up to
$\mathcal{O}(1/\Lambda^4)$ under the assumption of universal, C and P conserving new physics. We show that the analysis of data from those two sectors allows us to obtain closed constraints in the relevant parameter space in this scenario. In particular we find that the Large Hadron Collider data can independently constrain the Wilson coefficients of the dimension-six and -eight operators directly contributing to the triple gauge boson vertices. Our results show that the impact of dimension-eight operators in the study of triple gauge couplings is small.

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