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Searching for heavy scales in the Electroweak Effective Theory

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Effective field theories seem to be one of the best choices in order to look for new physics at the TeV scale and beyond, provided that direct searches finally are unsuccessful. We build an effective Lagrangian with the particle content of the Standard Model and incorporate the most general colour-singlet heavy fields with bosonic quantum numbers $J^P = 0^{\pm}$, $1^{\pm}$ in triplet and singlet representations. Our only assumption stays in the electroweak symmetry breaking pattern $SU(2)_L \otimes SU(2)_R \to SU(2)_{L+R}$. When the heavy fields are integrated out from the action, they leave their imprints in the coupling constants of the low-energy scales. The presence of deviations of this couplings with respect to the Standard Model predictions would be an indicator for the existence of a new physics scale.

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