

(Mostly) Model-Independent Searches for New Physics in Vector-Boson Scattering

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The discovery of a light Higgs boson has all but strengthened the case of weak vector boson scattering (VBS) at hadron colliders as a search vehicle for new physics, as deviations in the Higgs saturation of the unitarization in that channel provide a huge lever arm for searches. The very highest-energy nature of those events with large diboson invariant masses notoriously plagues effective-field theory descriptions aiming for model-independent approaches. We show how to accommodate this problem by a unitarization prescription that allows to get meaningful limits from data. This prescription saturizes vector boson scattering amplitudes to their maximal values allowed by unitarity at high energies, and can accommodate both weakly and strongly interacting models. Beyond the (unitarized) EFT ansatz we also discuss generic scalar and tensor resonances in VBS with special emphasis on the theoretical treatment of the high-energy behavior of tensor resonances.

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