

Probing Higgs Physics with Vector-Boson Scattering

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In the standard model, the Higgs boson unitarizes longitudinally polarized vector boson scattering. If the couplings are not standard model like, this unitarization is lost and large increases in scattering cross sections can occur. Therefore, longitudinally polarized vector scattering is a potential probe of BSM Higgs physics. Unfortunately however, this potential probe of new physics is usually obscured by the large irreducible background of transversely polarized boson scattering. We show that combining cuts on two main observables is very effective at reducing this transversely polarized background, enabling vector boson fusion to provide a robust, model independent method to study Higgs boson couplings to gauge bosons.

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