Vector Boson Scattering: a new toolkit to probe the standard model and beyond

Dr. Joany Manjarrés

Institut für Kern- und Teilchenphysik, Technische Universität Dresden

The discovery of the Higgs boson at the Large Hadron Collider (LHC) has invigorated the study of electroweak symmetry breaking (EWSB) and confirmed once again that the Standard Model (SM) is a reliable model, at least as a first approximation. Some hints for our New Physics quest may be found at the heart of the SM, in the breaking of the electroweak symmetry. With the EWSB mechanism vector bosons acquire mass, at the same time rules the scattering of vector bosons (VBS), avoiding its divergence at high energy. The rate of occurrence of VBS processes is predicted to be very low due to cancellations of different contributions. Processes related to new physics can disturb this delicate balance and lead to potentially large enhancements of the VBS rate, making it the ideal process for a model-independent test-bench of new physics. The door for measuring VBS at the LHC has just open. Let's have a look!