Same-sign WW scattring and polarisation at ATLAS

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Within the Standard Model (SM) of particle physics, weak vector bosons are allowed to be massive as a result of the spontaneously broken electroweak symmetry which is said to have resulted from a phase transition of the Higgs potential in the early universe. Measurements of the scattering of weak vector bosons—referred to as Vector Boson Scattering (VBS)—provide a powerful probe of the electroweak interaction and offer crucial insight into the mechanism of electroweak symmetry breaking.

In this seminar, I will present recent results from the ATLAS experiment at the Large Hadron Collider on the scattering of same-sign W boson pairs, including the first evidence of the production of polarized W states. I will also discuss some prospects for these measurements at the High-Luminosity LHC and the proposed Future Circular Collider.