

Search for signatures of physics beyond the Standard Model in vector boson scattering processes at the CMS experiment at LHC

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Vector Boson Scattering (VBS) is essential for understanding electroweak symmetry breaking and testing the Standard Model at high energies. At the LHC, the CMS experiment investigates VBS processes to identify potential deviations, such as anomalous quartic gauge couplings (aQGCs), which could hint at new physics, including undiscovered particles or interactions. This project focuses on the scattering of two same-sign W bosons, producing two same-sign leptons, neutrinos, and two jets. For this analysis, we used a subset of Run 3 data from 2022, corresponding to an integrated luminosity of 27 fb^{-1} . Background estimation incorporates both Monte Carlo (MC) simulations and a data-driven approach for non-prompt backgrounds.

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