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## **Vector boson scattering, triple gauge-boson production (including $Zgg$ ) and limits on anomalous quartic gauge couplings with the ATLAS detector (15' + 5')**

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Vector-boson scattering processes provide a unique way to probe the mechanism of electroweak symmetry breaking. Similar physics can be probed by studying the production of three gauge bosons. The results can also be used for a model-independent search for new physics at the TeV scale via anomalous quartic gauge couplings.

The ATLAS collaboration has studied vector boson scattering in final states with two gauge bosons and two forward jets in 20.3 /fb of 8TeV proton-proton collision data, in particular two same-sign W bosons, a WZ boson pair, and a W or Z boson in association with an isolated photon. The studies are complemented by a search for anomalous vector boson production of WW+WZ pairs in their semileptonic decays to lnujj in association with two forward jets. The collaboration has used this data set as well to study the production of three gauge bosons. A search was carried out for the production of three W bosons. The cross sections for the production of a W or Z boson in association with two isolated photons has been also measured. Z boson decays into charged leptons as well as neutrinos were studied. Finally, a measurement of exclusive production of W boson pairs produced by the interaction of two photons will be presented. This topology is found to provide strong constraints on anomalous quartic gauge couplings.

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