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Vector Boson Scattering in Semi-leptonic Final States with the ATLAS Detector

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The scattering of electroweak vector bosons is an important process for the study of the non-abelian gauge-structure of the electroweak sector as well as the nature of electroweak symmetry breaking. Many new physics situations provide amplification of this process and the decay channels which are most sensitive to these effects are the semi-leptonic channels, where one boson decays hadronically and the other leptonically. Searches in these final states exploits novel developments in the use of jet-substructure and machine learning to provide strong signal-to-background separation. This poster will show the results of the search for vector boson scattering in the semi-leptonic channels with 36/fb of 13TeV ATLAS data.

Summary

The scattering of electroweak vector bosons is an important process for the study of the non-abelian gauge-structure of the electroweak sector as well as the nature of electroweak symmetry breaking. Many new physics situations provide amplification of this process and the decay channels which are most sensitive to these effects are the semi-leptonic channels, where one boson decays hadronically and the other leptonically. Searches in these final states exploits novel developments in the use of jet-substructure and machine learning to provide strong signal-to-background separation. This poster will show the results of the search for vector boson scattering in the semi-leptonic channels with 36/fb of 13 TeV ATLAS data.

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