

Study of W Boson Production in Association with Two Jets using Boosted Decision Trees on Data Collected by the ATLAS Detector.

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As a fundamental interaction of the Standard Model, the electroweak production of a W boson in association with two jets in proton-proton collisions is of particular interest due to its sensitivity to vector boson fusion, a topic of high interest at the Large Hadron Collider as it's study can yield valuable information about the anomalous triple gauge couplings. By employing a machine learning network using boosted decision trees, high dimensional data collected by the ATLAS detector at CERN can be reduced to a single dimension. Applying an extended likelihood fit to this reduced dimension will yield a total fiducial cross section measurement, providing additional information towards our goal of improved understanding of the triple gauge couplings.

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