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Semi-leptonic ZZ/ZW Diboson Final State Search at 8 TeV with ATLAS

Using data collected at a center of mass energy of 8 TeV with the ATLAS detector, an investigation has been made of the semi-leptonic decay channel involving Z Z and Z W boson pairs in which there is a leptonic $Z \rightarrow f+f^-$ decay in the final state. Processes involving pairs of bosons in the final state play an important role in a wide range of measurements and searches at the LHC. They allow for precision tests of the electroweak sector of the standard model, provide benchmark measurements necessary for Higgs search channels, and allow for new physics searches including Technicolor, supersymmetry, and models with extra dimensions. Furthermore, the semi-leptonic final state, in which there is a high- p_T W or Z decaying hadronically, offers a valuable test of jet substructure techniques that are becoming increasingly important to searches at the LHC. This poster presents a search for high mass diboson resonances in the semi-leptonic Z Z / Z W channel, interpreted in terms of bulk Randall-Sundrum Gravitons decaying to pairs of Z bosons. Upper limits on cross section times branching ratio are set in a Graviton mass range from 300 GeV to 2 TeV and a lower limit on the Graviton mass is found to be 850 GeV.

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