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A search for tWZ production with the ATLAS detector using the three and four lepton final states in proton-proton collisions at $\sqrt{s} = 13\text{TeV}$

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The production of a single top quark with an associated W and Z boson (tWZ) is a rare Standard Model process which has never before been measured. This process is sensitive to the top quark electroweak coupling found in some Beyond Standard Model theories such as Standard Model Effective Field theory and may hold information for constraining these theories. A previous search has been performed for tWZ production using 139 fb^{-1} of proton-proton collision data at a centre of mass energy of 13 TeV recorded at the ATLAS detector. The search was performed across the tetralepton and trilepton final states and have been combined to further increase the sensitivity of the analysis. This analysis was expanded to include a comprehensive set of systematic uncertainties. The work presented will include new preliminary blinded results for the cross section of tWZ production.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

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