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Search for tWZ in proton-proton colisions at $\sqrt{s} = 13$ and 13.6 TeV with the ATLAS Experiment — Diptaparna Biswas, •Carolina Costa, Markus Cristinziani, Carmen Diez Pardos, Ivor Fleck, Gabriel Gomes, Jan Joachim Hahn, Nikolaos Kamaras, Vadim Kostyukhin, Nils Benedikt Krengel, Austin Olson, Inês Pinto, Sebastian Rentschler, Elisabeth Schopf, Katharina Voss, Wolfgang Walkowiak, and Adam Warnerbring — Experimentelle Teilchenphysik, Center for Particle Physics Siegen, Universität Siegen

The production of top quarks in association with bosons are important Standard Model processes that allow tests of the electroweak couplings of the top quark to bosons. Any deviations of these couplings from Standard Model expectations could indicate the presence of new physics, which could be probed in the context of, e.g., Effective Field Theory interpretations. The associated production of a single top quark together with a W and a Z boson (tWZ) is one of the rarest processes accessible at the LHC, benefiting from the large proton-proton collision datasets collected at centre-of-mass energies of 13 TeV and 13.6 TeV. In this contribution, the ongoing effort to measure tWZ with the ATLAS detector using Run 2 and Run 3 data is presented. The measurement focuses on multilepton final states, where the Z boson and at least one of the two W bosons decay to leptons, yielding a final state with three or four leptons.

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