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Measurements of differential cross sections and spin asymmetry in tZq — •DAVID WALTER and ABIDEH JAFARI — DESY, Hamburg, Germany

The associated production of a single top quark and a Z boson in pp collisions at the LHC includes the tZ coupling as well as the coupling of three vector bosons (WWZ) and is therefore a unique process to study the couplings of heavy particles in the SM. The top quark in this process is polarized due to its production through the weak interaction. Since the top quark decays before it hadronizes, the spin information is conserved in the leptonic decay products and can be measured. In this talk the first differential measurement of the tZq cross section is presented where the full Run-2 data of 138 /fb is used. The tZq cross section is measured at parton and particle level as a function of various kinematic observables including leptons and jets. A maximum likelihood unfolding procedure is exploited to correct for detector and hadronization effects. Also presented is the first measurement of the spin asymmetry in tZq , which is proportional to the top quark polarization.

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