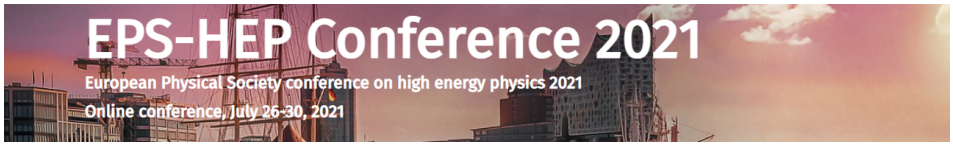

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Measurement of the Differential Cross Section and Spin Asymmetry of the Associated Production of a Single Top Quark and a Z Boson at the CMS Experiment

The associated production of a single top quark and a Z boson 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 poster we document the first differential measurement of the tZq cross section where the full run II data of 137 /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. Therefore a maximum likelihood unfolding procedure is exploited to correct for detector and hadronization effects. Connected to the differential cross section measurement, this poster also presents the first measurement of the spin asymmetry, which is proportional to the top quark polarization, for this process.

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Collaboration / Activity

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