

## Contribution submission to the conference Erlangen 2026

**Measurement of tWZ production with full Run 2 and 3 data at CMS** — •FLORENT PRÉAU, ROMAN KOGLER, ALBERTO BELVEDERE, and DENNIS SCHWARZ — Deutsches Elektronen-Synchrotron DESY, Notkestraße 85, D-22607 Hamburg

The production of a single top quark in association with a W boson and a Z boson, also referred to as tWZ production, is a very rare process of high energy proton-proton collisions. It presents unique and important features when it comes to probing the Standard Model of particle physics and looking for physics beyond this model. This process offers the possibility to probe electroweak couplings of the top quark, as well as its coupling to the Higgs boson.

In this talk I will present the current state-of-the-art of the tWZ analysis and will discuss some of its important extensions that I will explore during my PhD project. These extensions include performing an analysis with the full Run 2 and Run 3 datasets of CMS, performing a differential measurement of the process, and extracting top quark couplings using the Standard Model Effective Field Theory (SMEFT) framework.

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