

Measurement of the total and differential production cross-sections of $t\bar{t}W$ at 13TeV in 140fb⁻¹ of data with the ATLAS detector

I will present $t\bar{t}W$ differential cross-section measurement using 140fb⁻¹ proton-proton collision data recorded from 2015 to 2018 with the ATLAS detector at the Large Hadron Collider. The inclusive $t\bar{t}W$ production cross-section is measured to be 880+80fb, in agreement with predictions within 2 standard deviations. This result is a very important input for the ongoing $t\bar{t}H$ measurement.

Differential cross-section measurements characterize this process in detail for the first time. Several particle-level observables are compared to a variety of theoretical predictions which are in good agreement with the normalized differential cross-section results.

The report will focus on the following contents:

1. Analysis strategies
2. Main background estimation
3. Inclusive cross-section measurement
4. Differential cross-section measurement

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