



Contribution ID: 44

Type: **not specified**

Prospects for $t\bar{t}Z$ measurements at ATLAS with the full 140 fb^{-1} Run 2 dataset

Monday, April 8, 2019 2:00 PM (15 minutes)

We review the recent measurement of the inclusive $t\bar{t}Z$ cross-section with 36 fb^{-1} of data at 13 TeV at the ATLAS experiment, using EFT considerations and background modelling for generic SUSY/DM searches as motivation for continuing to improve the precision of this result. We then present plans for a differential $t\bar{t}Z$ measurement in the 3 and 4 lepton channels with the full 140 fb^{-1} Run 2 dataset, and highlight a number of promising research directions, such as a re-interpretation in terms of $t\bar{t}Z$ spin correlation observables, or the possibility to unfold SUSY/DM validation regions (or even null-result signal regions) to constrain the $t\bar{t}Z(\nu\nu)$ process. Particular attention is also given to the topic of semi-leptonic top reconstruction, necessary to match the performance of the dileptonic decay channels.

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Session Classification: Parallel stream 4