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From Inclusive to Differential: Precision Measurements of ttW Production at 13 TeV

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The production of a top–antitop quark pair in association with a W boson ($t\bar{t}W$) is a dominant background in several measurements of rare processes, such as $t\bar{t}H$ and four-top ($t\bar{t}t\bar{t}$) production, as well as in searches for physics beyond the Standard Model. The precision, accuracy, and modeling of the $t\bar{t}W$ process represent a major limitation in the sensitivity of these analyses. Moreover, previous LHC results have shown tensions between data and Standard Model predictions, further motivating precise studies of $t\bar{t}W$ production. This talk presents the latest measurements of both the inclusive and, for the first time, differential cross sections of the $t\bar{t}W$ process, using the full Run 2 dataset of proton–proton collisions at $\sqrt{s}$ = 13 TeV recorded with the ATLAS detector at the LHC.

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