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Title: Recent highlights on top-quark physics with the ATLAS detector

Abstract:

Highlights of recent measurements on top-quarks physics performed by the ATLAS Collaboration are presented. At the Large Hadron Collider top-quarks are copiously produced, allowing for detailed studies of the production processes by measuring differential and even double-differential cross-sections of top-quark-antiquark pair production. These measurements can be used to compare to fixed-order predictions at the highest available precision, predictions by different Monte Carlo generator setups, the extraction of the top-quark mass or for further constraining parton distribution functions. Another focus of recent analyses is the study of rare production processes, such as the production of a top-quark-antiquark pair in association with a gauge boson. Recent measurements of top-quark-antiquark production in association with a high-pT photon or a Z boson are discussed. An exciting new result is the evidence for the simultaneous production of two top-quark-antiquark pairs, called four-top-quark production. This process is very rare with a cross-section five orders of magnitude smaller than the leading top-quark-antiquark production process.