

Top quark physics at 13 TeV with the CMS experiment at the LHC

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Even before starting operation, the LHC was known as a top quark factory; today, it is established as one. While the Tevatron legacy is still very important, ATLAS and CMS have already produced an impressive amount of results, achieving unprecedented precision in top physics.

During the first running period of the LHC, with a center of mass energy of 7 and 8 TeV, more than 5 million top pairs and more than 2 million of single top events were produced in collisions at the CMS experiment. With this, the CMS collaboration has measured inclusive, differential, and fiducial production cross sections. The CMS top mass measurement is the most precise to date, with an uncertainty of 0.3%. Other properties, such as width, spin, or W helicity have also been measured and searches for new physics in top events have been performed.

At the start of the high energy LHC Run-2, about one year ago, top results were made public with the very early data, with integrated luminosities as low as 42pb^{-1} . Top quark processes, that had taken decades to be studied at earlier colliders, are now a Standard Model candle at the LHC. During this talk, a summary of the results already obtained with the data available at 13TeV during the LHC Run-2 will be presented, together with the potential for future studies at the LHC and beyond.