

## Contribution submission to the conference SMuK 2023

**First measurement of the top quark pair production cross section at  $\sqrt{s} = 13.6$  TeV at the CMS experiment** — MARIA ALDAYA, ALEXANDER GROHSJEAN, •LAURIDS JEPPE, ANDREAS MEYER, EVAN RANKEN, and CHRISTIAN SCHWANENBERGER — Deutsches Elektronen-Synchrotron DESY, Notkestraße 85, D-22607 Hamburg

Recently, the Large Hadron Collider (LHC) at CERN has reached a new, unprecedented center-of-mass energy of  $\sqrt{s} = 13.6$  TeV, starting LHC Run 3. This presents the opportunity to measure relevant physical quantities at the new energy frontier, thereby checking the predictions of the standard model. In this talk, we present the first measurement of the top quark pair production cross section at  $\sqrt{s} = 13.6$  TeV, using data recorded at the CMS detector. The analysis uses a new method combining dilepton and lepton+jets decay channels, constraining several experimental uncertainties such as lepton selection and b jet identification efficiencies in situ. This result constitutes a first validation of the new data taken by CMS in LHC Run 3.

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