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First measurement of Top quark pair production in Run3 PbPb collisions at 5.36 TeV with CMS

The production of top quarks in heavy ion collisions serves as a novel tool for investigating nuclear parton distribution functions at high Bjorken-x. Although being a quark, the top has a short lifetime, decaying predominantly to a W boson and b quark pair, before hadronizing. Leptonic final states from the subsequent W boson decay are thus effectively electroweak probes of the medium they traverse before reaching the detector. The CMS collaboration has reported evidence of top quark pair ($\mathrm{t\bar{t}}$) production using data from lead-lead (PbPb) collisions during Run 2. This talk will present the first measurement of $\mathrm{t\bar{t}}$ production utilizing $1.63\ \mathrm{nb}^{-1}$ of PbPb data collected by CMS at 5.36 TeV in 2023 and derived using kinematic variables from leptons and jets.

Secondary track

Author: COLLABORATION, CMS

Presenter: COLLABORATION, CMS

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