What the LHC tells us about the top quark, the heaviest particle in nature

Friday 4 April 2025 12:00 (30 minutes)

The unprecedented data collected during proton-proton collisions at 13 and 13.6 TeV by the CERN LHC have significantly advanced our understanding of the top quark, the heaviest known elementary particle. This talk will highlight recent results on top quarks from the ATLAS and CMS collaborations, including precise determinations of key properties such as its mass and the production rates of rare processes, including four-top quark production. Additionally, the top quark's unique role in the Standard Model, particularly its large Yukawa coupling, close to unity, establishes a strong connection with the Higgs boson and makes it therefore a compelling focus for exploring potential new particles. Investigating top quark interactions at the highest energy scales underscores the potential of the LHC experiments to uncover fundamental new aspects of our universe.

Presenter: KOMM, Matthias (CMS (CMS Fachgruppe Searches))

Session Classification: Invited Overview Talks / Hauptvorträge