

T 99: Hauptvorträge VIII

Zeit: Freitag 11:00–12:30

Raum: H01

Hauptvortrag

T 99.1 Fr 11:00 H01

The Standard Model and the top quark at the LHC — •IAN BROCK — Universität Bonn, Bonn

With the end of Run 2, both ATLAS and CMS have collected around 150 fb^{-1} of data at a centre-of-mass energy of 13 TeV. Standard Model and top-quark processes are backgrounds for most searches for new physics. It is therefore essential that they are understood as well as possible. The talk will present the latest measurements of tests of the Standard Model published by the LHC collaborations, emphasising the measurements with the heaviest elementary particles (with the exception of the Higgs boson): the top quark and W and Z bosons. Top quarks have even been observed in the LHCb experiment recently. The most precise measurements have percent level precision, which usually takes several years to achieve. Differential cross-section measurements allow models to be tested in more detail and provide valuable input

for improved simulations.

Hauptvortrag

T 99.2 Fr 11:45 H01

Don't be a WIMP - new ideas for light dark matter — •FELIX KAHLHÖFER — Institute for Theoretical Particle Physics and Cosmology (TTK), RWTH Aachen University, D-52056 Aachen, Germany

In spite of the overwhelming evidence for the existence of dark matter, its properties remain elusive. I will review the global effort to search for dark matter and discuss the implications of the present absence of new signals. A consistent combination of all available information mounts pressure on the idea of Weakly Interacting Massive Particles, which may point to a production mechanism in the Early Universe different from thermal freeze-out. I will review a number of attractive alternatives and discuss their theoretical and experimental implications.