

T 70: Hauptvorträge III

Zeit: Donnerstag 11:00–12:10

Raum: Z6 - HS 0.004

Hauptvortrag T 70.1 Do 11:00 Z6 - HS 0.004
The Pierre Auger Observatory: the quest for elucidating the nature and origin of UHECRs — ●MARKUS ROTH — KIT, Karlsruhe, Germany

Ultra-high energy cosmic rays are the most energetic particles directly measured, reaching orders of magnitude above those attained in the LHC. The Pierre Auger Observatory is the largest ultra-high energy cosmic ray observatory in the world. The huge amount of high quality data collected since 2004 up to now led to great improvements in our knowledge of ultra-high energy cosmic rays. The suppression of the cosmic-ray flux at highest energies was clearly established, and the extra-galactic origin of these particles was confirmed. On the other hand, measurements of the depth of shower maximum indicate a puzzling trend in the mass composition of cosmic rays at energy around the ankle up to the highest energy. The just started upgrade of the Observatory, dubbed AugerPrime, will improve the identification of the mass of primaries allowing us to disentangle models of origin and propagation of cosmic rays. We will present the latest results and future perspectives emphasizing the expected performance of AugerPrime.

Hauptvortrag T 70.2 Do 11:35 Z6 - HS 0.004
Top Quark Physics at the LHC: Probing the New Energy Frontier — ●CARMEN DIEZ PARDOS — DESY Hamburg, Germany

The top quark is the heaviest known elementary particle and the only quark that decays before hadronising, and thus gives direct access to its properties. With its large mass, it plays a crucial role for testing the predictions of the Standard Model (SM) and in the measurement of the Higgs boson properties. Top-quark measurements also provide important input to QCD calculations. Moreover, various scenarios of physics beyond the SM expect the top quark to couple to new particles.

The large data samples collected at the CERN LHC allow performing very precise measurements of top-quark production and properties, challenging the accuracy of the state-of-the-art SM theoretical predictions, as well as measuring for the first time very rare SM processes. In this presentation, I will review a selection of the most recent top-quark physics measurements performed with the ATLAS and CMS experiments.