

Plenary Talk PV II Tue 11:00 Geb. 30.95: Audimax
Twenty years of ultra-high-energy cosmic-ray physics with the Pierre Auger Observatory — ●RALPH ENGEL for the Pierre-Auger-Collaboration — Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Since the discovery of the first cosmic particle with an energy of about 10^{20} eV, more than one Joule, in the 1960ies, understanding the origin and nature of these particles has been a central goal in astro- and particle physics. The extremely small flux of these particles, which

can only be observed indirectly through their gigantic cascades of secondary particles they produce when entering the Earth's atmosphere, has made progress in this field very difficult. With the Pierre Auger Observatory, an detector installation covering an area of 3000 km² in Argentina, the so-far largest number of these particles has been detected in unprecedented quality. The Auger Observatory began taking data in 2004 and has since revolutionized our understanding of ultra-high energy cosmic rays. In this talk, we will review the main results of the Auger Observatory and discuss their implications in the context of astroparticle physics.