

The High-Energy End of the Cosmic-Ray Electron Spectrum

Thursday, August 30, 2018 2:34 PM (0:17)

Abstract content

Multi-TeV cosmic-ray electrons carry unique information about local accelerators because of their severe radiative energy losses and the associated short propagation distances. The very low fluxes and the large background of hadronic cosmic rays however impose severe challenges to both space-born and ground-based measurements. The next generation satellite experiments are just starting to probe this energy regime. They will still need a couple of years to gain the statistics needed for precision measurements. Ground-based instruments with their five orders of magnitude larger effective collection areas on the other hand accumulate the necessary statistics easily and are ideally suited for measurements in this energy range. Their indirect detection of cosmic-ray electrons however requires a superb separation of the excessive hadronic background and is therefore prone to systematic errors. Recent developments allow now for the first time a measurement of the cosmic-ray electron spectrum up to 20 TeV, and provide at the same time a significant reduction of the associated systematic uncertainties. This contribution will present and discuss the latest H.E.S.S. measurement of the cosmic-ray electron spectrum.

Primary author(s) : Dr. EGBERTS, Kathrin (Potsdam University); Dr. KERSZBERG, Daniel (IFAE-BIST); Dr. KRAUS, Manuel (ECAP); Dr. LENAIN, Jean-Philippe (LPNHE (CNRS/IN2P3)); Prof. REIMER, Olaf (UIBK); Prof. VINCENT, Pascal (LPNHE (CNRS/IN2P3))

Presenter(s) : Dr. KERSZBERG, Daniel (IFAE-BIST)

Session Classification : Cosmic Rays

Track Classification : Cosmic Rays