

Latest Results from the Pierre Auger Observatory

Thursday, September 29, 2022 3:30 PM (30 minutes)

In the new scientific era of multi-messenger astronomy, ultra-high-energy cosmic rays offer a very rare opportunity to investigate the nature of astrophysical sources and particle interactions at energies far from current particle accelerators capabilities. With almost 20 years of operation, the Pierre Auger Observatory is the world's largest cosmic ray detector providing a unique data set of the most energetic particles in the Universe. The Observatory employs a hybrid technique: a Surface Detector consisting of 1660 Water Cherenkov detectors and covering an area of 3000 km² and 27 Fluorescence telescopes. A review of selected results is presented, focusing on the energy spectrum, mass composition measurements, search for sources, neutral particles and fundamental physics. The future prospects of the Observatory will also be discussed in light of the AugerPrime upgrade currently under construction.

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Session Classification: Session 8