

The AugerPrime Upgrade of the Pierre Auger Observatory.

Tuesday, July 28, 2020 3:45 PM (15 minutes)

To answer many questions still open in the field of Ultra-High-Energy Cosmic Rays, the Pierre Auger Collaboration started a significant upgrade of the Observatory, called AugerPrime.

The main goal of the upgrade is to improve the mass composition sensitivity of the surface detector on a shower-to-shower basis, in order to explore the cosmic ray composition at energies above 10^{19} eV. At energies unexplored by terrestrial accelerators, it will be possible to study the properties of multi-particle production and to search for new or unexpected changes of hadronic interactions. Moreover, in the region of the suppression of the cosmic ray flux, charged particle astronomy will benefit from the knowledge of the fraction of light primaries for composition-selected anisotropy searches.

After a discussion of the motivations for upgrading the Pierre Auger Observatory, a description of the detector upgrade will be provided, together with an evaluation of the expected performance and the improved physics sensitivity. Finally the first data collected will be presented.

Secondary track (number)

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Session Classification: Operation, Performance and Upgrade of Present Detectors

Track Classification: 12. Operation, Performance and Upgrade of Present Detectors