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### Session
Cosmic ray and Astro-particle physics

### Title
The Pierre Auger Observatory status and latest results

### Abstract:

Ultra-high energy cosmic rays represent the most energetic particles available to scientists. They have macroscopic energies, exceeding 1 EeV, but their detection is a challenge, the cosmic ray flux being very weak, around one particle per century per square kilometer for the highest energies. The Pierre Auger Observatory, in Argentina, is the present flagship experiment studying ultra-high energy cosmic rays. The combination of a large array of surface detectors covering 3000 km² and fluorescence telescopes enhances the performances of the extensive air shower detection and measurements, resulting in both high statistics and unprecedented data quality. Moreover, the operation of a denser sub-array has extended the sensitivity to lower energies. Altogether, these contribute to providing important information on key questions on cosmic rays in the energy range from 0.1 EeV up to 100 EeV, as it is highlighted in this presentation of the latest results obtained by the Pierre Auger Collaboration. Despite a large number of valuable results, the understanding of nature and the origin of the highest energy cosmic rays remains an open science case that the Auger collaboration is willing to address with the AugerPrime project.