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The Pierre Auger Observatory: latest results and future perspectives

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The Pierre Auger Observatory, in the south of Mendoza province (Argentina), is the largest facility in the world to observe ultra-high-energy cosmic rays (UHECR) and has been taking data for almost twenty years. It is designed to simultaneously detect the longitudinal development of the extensive air showers in the atmosphere and the measurement of particles' densities at ground level. This hybrid technique allowed to produce results with unprecedented precision. In this talk, I will report on the energy spectrum, mass composition and arrival directions of cosmic rays in the range of $10^{16.5}$ eV to $10^{20.0}$ eV. I will also present the upgrade of the Observatory detection system, AugerPrime, that aims at improving the observables sensitive to mass composition at the highest energies to tackle the still open questions regarding the UHECR's origin.

In-person participation

Yes

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