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The Pierre Auger Observatory

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The Pierre Auger Observatory has been detecting ultra-high energy cosmic rays (UHECRs) for more than fifteen years. An essential feature of the Observatory is its hybrid design: cosmic rays above 10^{17} eV are detected through the observation of the associated air showers with different and complementary techniques, from surface detector arrays and fluorescence telescopes to radio antennas. The analyses of the multi-detector data have enabled high-statistics and high-precision studies of the energy spectrum, mass composition and distribution of arrival directions of UHECRs. The resulting picture is summarized in this contribution. While no discrete source of UHECRs has been identified so far, the extragalactic origin of the particles has been recently determined from the arrival directions above 8 EeV, and the ring is closing around nearby astrophysical sites. Besides, the established upper limits on fluxes of UHE neutrinos and photons have implications on dark matter and cosmological aspects that are also presented in this contribution.

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