

# What we know about ultra-high-energy cosmic rays after 20 years of operation of the Pierre Auger Observatory

*Friday 6 September 2024 09:25 (20 minutes)*

The Pierre Auger Observatory is the largest detector in the world for ultra-high-energy cosmic rays. After 20 years of operation, many important results about the most energetic particles in the universe have been obtained. For example, the observation of a dipole in the distribution of the cosmic rays above  $8 \times 10^{18}$  eV pointing away from the Galactic Center, indicates an extragalactic origin for the majority of particles in this energy range.

The Observatory has also undergone many upgrades and extensions allowing, amongst other things, measurements to be extended to energies as low as a few tens of PeVs, getting closer to the high-energy end of the gamma-ray and neutrino observations.

Here we present the latest results obtained with this unprecedented dataset of cosmic rays, with a particular focus on the ones of interest for the community of high-energy astrophysics.

**Primary author:** CACCIANIGA, Lorenzo (Istituto Nazionale di Fisica Nucleare - Sezione di Milano)

**Presenter:** CACCIANIGA, Lorenzo (Istituto Nazionale di Fisica Nucleare - Sezione di Milano)

**Session Classification:** Plenary