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Global fit of UHECR spectrum, composition, and anisotropies measured at the Pierre Auger Observatory

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To uncover the sources of ultra-high-energy cosmic rays, three main observables are measured at the Pierre Auger Observatory - the cosmic-ray energies, the depths of maximum air shower development, and the arrival directions. At energy E>8 EeV, the arrival directions exhibit a dipolar structure pointing away from the center of our Galaxy indicating an extragalactic origin of cosmic rays at that energy. At the highest energies E>40 EeV, anisotropies at intermediate scales arise which correlate with the directions of nearby source candidates like Centaurus A or a catalog of starburst galaxies.

By combining these observations of anisotropies in the cosmic-ray arrival directions with the energy spectrum and shower depth distributions in a global fit, the results can be interpreted further. This allows for conclusions on the contributions of individual source candidates, the density of sources, or the influence of extragalactic and Galactic magnetic fields, all of which will be discussed in this contribution.

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