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Studies of the arrival direction distribution of cosmic rays at the Pierre Auger Observatory

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The Pierre Auger Observatory has been in operation since January 2004, detecting cosmic rays with energies from few 10 PeV to more than 100 EeV. We present the results of anisotropy studies of the arrival directions at different angular scales and energies using both the data recorded by the 1500 m grid array, covering 3000 km² and fully efficient above 3 EeV, and the 750 m grid array, covering 25 km² and fully efficient above 0.3 EeV. The large scale analysis of the right ascension distribution using the 1500 m array data shows interesting hints of an equatorial dipolar component. Also a tridimensional reconstruction of the dipolar and quadrupolar components is presented, leading to upper limits that put bounds on models with a galactic component at energies above 1 EeV. Results from a blind search of overdensities at various angular scales and energy ranges above 1 EeV are also presented, as well as those of the search for galactic neutron sources. At the highest energies, the results of the study of the correlation with AGN directions are presented.

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