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The UHECR spectrum measured at the Pierre Auger Observatory and its astrophysical implications

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Abstract content

The Southern part of the Pierre Auger Observatory, which is nearing completion, has been in stable operation since January 2004 whilst it has grown in size. The large sample of data collected so far has led to a significant improvement to the energy spectrum of UHE cosmic rays over that previously reported by the Pierre Auger Observatory, both in with regard to statistics and systematic uncertainties. In this contribution we summarise two measurements of the energy spectrum, one based on the high-statistics surface detector data, and the other on the hybrid data, where the precision of the fluorescence measurements is enhanced by additional information from the surface array. The complementarity of the two approaches is emphasised, and results are compared. Possible astrophysical implications of our measurements, and in particular the presence of spectral features, are discussed.

If this papers is presented for a collaboration, please specify the collaboration

The Pierre Auger Collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 4 (HE part 1), pages 335-338

Primary author(s) : THE PIERRE AUGER COLLABORATION, - (The Pierre Auger Observatory); Dr. TOKANATSU, Yamamoto (University of Chicago)

Presenter(s) : Dr. TOKANATSU, Yamamoto (University of Chicago)

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