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An Additional Component Blurring the Transition between Galactic and Extragalactic Cosmic Rays?

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Recent KASCADE-Grande and Auger results between 10^{17} eV and 5 10^{18} eV have revealed complex features in the energy spectrum, be it in the all-particle one or in the composition-sensitive ones. They have also revealed that the mass composition is dominated by iron nuclei around 10^{17} eV, and by light and intermediate-nuclei elements above 10^{18} eV. In this contribution, we argue that these results can be interpreted in a coherent way as the manifestation of an additional component of a different origin from the one responsible for the bulk of Galactic cosmic rays. This component, sub-dominant below 10^{17} eV, appears dominant together with the extragalactic one once the standard Galactic component is extinguished above few 10^{17} eV, and is responsible for the ankle feature through its rapid suppression above 10^{18} eV. Possible signatures left in the large-scale structure of arrival directions are discussed.

Collaboration

– not specified –

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