### **30th International Cosmic Ray Conference**



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# Transition from galactic to extragalactic cosmic rays

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# Abstract content

Despite the radical change of origin, the transition from galactic to extragalactic cosmic rays (CR) is not well established and not well understood. In principle three important characteristics of CR, spectrum, chemical composition and anisotropy, must change at energy of transition. The spectrum is naturally changing from steep to flat component. The end of galactic CR is characterised by steep spectrum with exponent \gamma  $\tilde{~} 3.1$ . If transition is natural, the extragalactic spectrum must be flatter. For rigidity-acceleration or rigidity-propagation models the end of galactic CR must be presented by the heaviest nuclei, most probably by iron. The transition should be characterised by changing the mass composition from heaviest to the light nuclei, like proton and helium. In the end of galactic CR spectrum the anisotropy should be noticeable, while for extragalactic CR isotropic distribution is more natural. There are two features in the observed spectrum, where the transition may occur: the ankle, the flattening of the spectrum at energy  $\tilde{~}10$  EeV, and the second knee at energy 0.4 - 08 $\tilde{~}$ EeV. Two classes of models describing transition at these two energies will be reviewed.

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

# Summary

## Reference

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