



Contribution ID: 60

Type: Oral

Ultra-high-energy cosmic rays from local radio galaxies

Friday, 11 August 2017 17:15 (15 minutes)

Local Radio galaxies (RGs) like Centaurus A are intensively discussed as the source of the observed Cosmic Rays above 3 EeV (UHECRs).

In this talk a first systematic study is presented where all observational features of the UHECRs, i.e. the energy spectrum, the chemical composition and the arrival directions, are used to draw severe constraints on the UHECR contribution from the local RGs (up to a distance of about 120 Mpc from the Earth). Here, the radio luminosity of the RGs is linked to the UHECR luminosity to take the different states of the individual sources into account. Further, we also discuss the necessary contribution of the non-local sources. The propagation of the UHECR candidates is performed with the publicly available code CRPropa3 where the extragalactic magnetic field (EGMF) model from cosmological MHD simulations is used.

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Session Classification: Cosmic rays

Track Classification: Cosmic rays