

Observational evidence as to sources and composition of Ultrahigh Energy Cosmic Rays

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Abstract. The effective density of UHECR sources and the correlation of UHECR datasets with homogeneous and complete catalogs of source candidates, are powerful tools for identifying the sources of UHECRs and discarding incorrect hypotheses. The allowed domain of source-density and deflection-modulus from UHECR data will be reported. Information from the cross-correlation between 2MASS galaxies within 200 Mpc, the new Generalized Maximum Likelihood method, and the Ursa Major cluster of UHECRs will be discussed. Combining this with constraints on the luminosity of sources, implied by the requirements of UHECR acceleration, leads to a very limited set of options for sources. The viable candidates are delineated.

Keywords: UHECR, composition, sources

Results will be presented at the ICRC meeting. This paper will be completed and posted on the arXiv after the meeting.