

Multi-messenger signals from UHECR propagation

Thursday 13 October 2016 11:10 (20 minutes)

Recent studies of gamma-ray spectra of distant blazars show evidence that cosmic rays are accelerated in their jets at least to 0.1-1 EeV. Secondary gamma rays from UHECR propagation can be used to understand extragalactic background light and to measure magnetic fields in deep intergalactic voids, where two independent techniques point to values of the order of a femtogauss. Secondary neutrinos produced in UHECR propagation may be responsible for PeV neutrino events reported by IceCube.

Presentation type

oral

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Session Classification: Oct.13AM2