

Formation and propagation of cosmic-ray ensembles

Friday 16 July 2021 19:18 (12 minutes)

High-energy particles undergo different interactions while propagating through the Universe. As a result, they initiate particle cascades of various types and sizes, referred to as cosmic-ray ensembles (CRE). Since recently, Cosmic-Ray Extremely Distributed Observatory (CREDO) Collaboration aims at pursuing a mission dedicated to CRE, since this observation channel, i.e. correlated observation of cosmic rays on the global scale, complements the current approach to cosmic-ray research, which focuses on air showers initiated by individual cosmic rays. Recent results of Monte Carlo simulations showing that there might be a chance of observing a CRE originating from synchrotron radiation occurring even as far away from the Earth as at distances exceeding the Galaxy size, are presented. The issues and perspectives of the CRE-oriented research are discussed as well.

Keywords

Cosmic rays; Cosmic ray ensembles

Collaboration

other Collaboration

Cosmic Ray Extremely Distributed Observatory (CREDO) Collaboration

Subcategory

Theoretical Results

Primary authors: Mr SUSHCHOV, Oleksandr (Institute of Nuclear Physics Polish Academy of Science); HOMOLA, Piotr; FOR THE CREDO COLLABORATION

Presenter: Mr SUSHCHOV, Oleksandr (Institute of Nuclear Physics Polish Academy of Science)

Session Classification: Discussion

Track Classification: Scientific Field: CRI | Cosmic Ray Indirect