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Astrophysical Solutions to the Origin of the Ultra-High Energy Cosmic Rays

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Abstract content

The solution to the origin of the UHECRs, like the solution to the origin of the galactic cosmic rays, depends on direct cosmic ray observations in addition to multiwavelength and UHE neutrino detections of cosmic-ray sources. The advent of Auger, IceCube, GLAST, and ground-based gamma-ray telescopes promises multi-channel data that should solve this problem. In this talk, I review favored astrophysical models for UHECR origin, including gamma-ray bursts and radio/gamma-ray bright active galactic nuclei. New calculations of cosmogenic neutrino and cascade gamma rays are presented. Special attention is paid to GRBs because of the GRB/SN connection, which holds interest to the preferred solution of the origin of the galactic cosmic rays in view of a common supernova origin and an acceleration mechanism involving shocks.

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Summary

Reference

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