

Abstract Submitted  
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**Searches for correlation between UHECR events and high-energy gamma-ray Fermi-LAT data** NESTOR MIRABAL, NASA/GSFC, EZEQUIEL ALVAREZ, IFIBA/ICAS, ALESSANDRO CUOCO, Institute for Theoretical Particle Physics and Cosmology (TTK), GABRIJELA ZAHARIJAS, Laboratory for Astroparticle Physics, University of Nova Gorica, FERMI COLLABORATION — The sources responsible for ultra high-energy cosmic rays (UHECRs) continue to be one of the most intriguing mysteries in astrophysics. We present a comprehensive search for correlations between high-energy ( $\geq 1$  GeV) gamma-ray events from the Fermi Large Area Telescope (LAT) and UHECRs ( $\geq 60$  EeV) detected by the Telescope Array and the Pierre Auger Observatory. We perform two separate searches. First, we conduct a standard cross-correlation analysis between the arrival directions of UHECRs and gamma-ray sources in the Second Catalog of Hard Fermi-LAT sources (2FHL). Second, we search for a possible correlation between UHECR directions and unresolved Fermi-LAT gamma-ray emission. We report our findings and their implications in the search for the origin of UHECRs.

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