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LHAASO observations of UHE gamma-rays from Microquasars

The Large High Altitude Air Shower Observatory (LHAASO) is a mega facility designed to investigate cosmic rays and gamma rays at very-high (VHE; $E > 0.1$ TeV) and ultra-high energies (UHE; $E > 0.1$ PeV). In its initial years of operation, LHAASO has detected more than 100 gamma-ray sources, with approximately half constituting a newly emerging population of UHE gamma-ray emitters. Among these are extended gamma-ray structures spatially associated with powerful microquasars, pointing to the presence of nearby PeVtrons, astrophysical accelerators capable of producing particles at peta-electronvolt energies. In this talk, I will present the microquasars detected by LHAASO and describe their spectral, spatial, and temporal characteristics. I will also discuss the implications of these findings for understanding the origin of UHE gamma rays and their progenitors—PeV electrons and protons likely accelerated within or around the microquasar environments.

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