

Abstract Submitted
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Investigating very extended objects with HAWC: from Molecular Clouds to Fermi Bubbles¹ HUGO AYALA, MATTHEW COEL, PETRA HNTEMEYER, Michigan Technological University, SABRINA CASANOVA, Max Planck Institute for Nuclear Physics, HAWC COLLABORATION — The observation of large gamma-ray emission structures is useful for tracing the propagation and distribution of cosmic rays throughout our Galaxy. For example, the search for gamma-ray emission from Giant Molecular Clouds may allow us to probe the flux of cosmic rays in distant galactic regions and compare it with the flux measured at Earth. Also, by observing at the gamma-ray signal, the composition of the cosmic rays can be measured by studying the emission from hadronic or leptonic processes. In the case of emission from the Fermi Bubbles specifically, constraining the mechanism of gamma-ray production can point to their origin. The High Altitude Water Cherenkov (HAWC) Observatory is located at 4100m above sea level in Mexico. It is designed to measure high-energy gamma rays between 300GeV to 100TeV. HAWC possesses a large field of view and good sensitivity to spatially extended sources, which currently makes it the best suited ground-based observatory to detect extended regions.

¹NSF; DoE; Michigan Technological University; Los Alamos National Lab; CONA-CyT; UNAM; BUAP; others

Hugo Ayala
Michigan Technological Univ

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