

Abstract Submitted  
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**Understanding the Galactic Diffuse Emission with the HAWC Gamma-Ray Telescope** CONSTANTINE SINNIS, Los Alamos National Laboratory, THE HAWC COLLABORATION — Knowledge of the Galactic diffuse emission can further our understanding of the origin and propagation of the cosmic radiation throughout the Galaxy. At energies above 1 GeV the EGRET observed an excess over predictions based upon our knowledge of the matter and radiation fields throughout the Galaxy. At higher energies (near 10 TeV), the Milagro detector measured an even larger excess from the direction of the Cygnus Region and an excess consistent with that measured by EGRET from other directions. The Fermi telescope has failed to confirm the GeV excess measured by EGRET and this has deepened the mystery of the TeV excess. The HAWC telescope will be able to resolve the diffuse emission into regions as small as 5 degrees across and measure the energy spectrum of the diffuse emission within these regions. HAWC measurements should enable one to understand the different contributions (nuclei and electrons) to the diffuse emission and thereby map out the cosmic-ray electron distribution throughout the Galaxy at energies near 10 TeV. In this talk I will discuss the capabilities of the HAWC Observatory and its promise for understanding the origin and propagation of cosmic rays within the Galaxy.

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