

Abstract Submitted  
for the APR16 Meeting of  
The American Physical Society

**The High Altitude Water Cherenkov Observatory** MIGUEL MOSTAFA, Pennsylvania State Univ, HAWC COLLABORATION — The High Altitude Water Cherenkov (HAWC) Observatory is a continuously operated, wide field of view experiment comprised of an array of 300 water Cherenkov detectors (WCDs) to study transient and steady emission of TeV gamma and cosmic rays. Each 200000 l WCD is instrumented with 4 PMTs providing charge and timing information. The array covers  $\sim 22000$  m<sup>2</sup> at an altitude of 4100 m a.s.l. inside the Pico de Orizaba national park in Mexico. The high altitude, large active area, and optical isolation of the PMTs allows us to reliably estimate the energy and determine the arrival direction of gamma and cosmic rays with significant sensitivity over energies from several hundred GeV to a hundred TeV. Continuously observing 2/3 of the sky every 24 h, HAWC plays a significant role as a survey instrument for multi-wavelength studies. The performance of HAWC makes possible the detection of both transient and steady emissions, the study of diffuse emission and the measurement of the spectra of gamma-ray sources at TeV energies. HAWC is also sensitive to the emission from GRBs above 100 GeV. I will highlight the results from the first year of operation of the full HAWC array, and describe the ongoing site work to expand the array by a factor of 4 to explore the high energy range.

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Date submitted: 06 Jan 2016

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