Particle Physics Seminar

Searching for Dark Matter with the HAWC Gamma Ray Observatory

Tuesday

November 29

4:00 P.M.

Rm 415 NSH

Dr. Kirsten Tollefson

Associate Chairperson for Graduate Programs &
Associate Professor
Michigan State University

The High Altitude Water Cherenkov (HAWC) Gamma-ray Observatory was completed in March 2015 and is now giving us a new view of the sky. HAWC is a continuously operating, wide field-of-view observatory sensitive to 100 GeV – 100 TeV gamma rays and cosmic rays. It is 15 times more sensitive than previous generation Extensive Air Shower gamma-ray instruments and is able to detect the Crab nebula at >5σ a day. HAWC operates 24 hrs/day with >95% on-time and observes the entire overhead sky (~2 sr) serving as a TeV "finder" telescope for Imaging Atmospheric Cherenkov Telescopes (IACTs). It monitors the same sky as gamma-ray satellites (Fermi), gravity-wave (LIGO) detectors and neutrino observatories (IceCube) allowing for multi-wavelength and multi-messenger observations. I will present highlights from HAWC's first year of operation with a focus on our most recent indirect dark matter searches.