Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Measurement of cosmic-ray induced high energy muons with the HAWC observatory AHRON BARBER, University of Utah, HAWC COLLABORATION[1] — High energy muons/muon bundles ($E_{muon} > 1$ TeV) can be created in primary interactions of ultra-high energy (UHE) cosmic rays with the Earth's atmosphere. The number and lateral distribution of high energy muons is related to the mass and energy of the primary cosmic ray, as well as specific details of the hadronic interaction between the primary cosmic ray and the atmospheric target nucleus. The HAWC observatory, located at 4100 m asl on the northern slope of Sierra Negra, Mexico, can detect near-horizontal trajectory (elevation 0-15 degrees) high energy muons as they traverse through individual water Cherenkov detectors. The extended size of HAWC (150 m x 150 m) allows detection of several thousand near-horizontal cosmic-ray generated high energy ($E > 3$ TeV) muons every year. In this talk, I will describe the prospects for using the HAWC observatory to explore UHE cosmic ray properties through measurements of near-horizontal muon bundles.

[1]High Altitude Water Cherenkov Observatory (HAWC)

Ahron Barber
University of Utah

Date submitted: 07 Jan 2016 Electronic form version 1.4