



Contribution ID: 122

Type: **Parallel Contributed Talk**

Modeling the background for a neutrino search with the HAWC observatory

Tuesday, February 23, 2021 5:50 PM (20 minutes)

The search for neutrino signals using a surface detector array is a challenging task that requires a very good control of the large background from cosmic radiation. In this work we propose to use the HAWC observatory, an $\sim 22000 \text{ m}^2$ water Cherenkov detector array located at 4100 m a.s.l., to search for neutrino induced muons produced within the largest volcano in Mexico, located in close vicinity of the detector array. We present preliminary results of the background measured with HAWC and a method designed to disentangle the atmospheric muon background from the neutrino induced signals.

Collaboration name

HAWC

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Session Classification: New Facilities

Track Classification: Neutrino Telescopes and Multimessenger