

Abstract Submitted
for the CUWIP21 Meeting of
The American Physical Society

Search **for**
Extragalactic Tev-Emitting Sources¹ KARA WHITAKER, San Diego State Univ, MIGUEL MOSTAFA, Pennsylvania State University, HAWC COLLABORATION — Although charged cosmic rays have been observed up to energies exceeding 10²⁰ eV, their origin and acceleration mechanisms remain unknown. The study of gamma rays is an excellent opportunity to study cosmic rays because photons have no electric charge, and therefore come straight to us from their original sources. Having detected galactic sources beyond 100 TeV, the High Altitude Water Cherenkov (HAWC) Observatory is currently the gamma-ray detector with the highest energy reach. Beyond our own galaxy, photons suffer attenuation in the extragalactic background light. Thus, by observing multi-TeV emission from extragalactic sources we would be identifying the most powerful accelerators in the universe. We start our study from a predefined list of relatively nearby extragalactic radio-emitting X-ray sources and search for very-high-energy emissions using data from the HAWC Observatory. If no significant excess is found, we use the HAWC data to determine upper limits at TeV energies for each extragalactic candidate allowing for constraints on the physical parameters of the sources (e.g., energy cutoff, spectral index, etc.). We also identify possible interesting candidates for further studies.

¹Funded by grants from Penn State Department of Physics, the Center for Nanoscale Science (NSF-MRSEC) and the National Science Foundation (DMR1460920 and DMR 1851987) and the National Institute of General Medical Sciences (NIGMS) of the National Institutes of Health (NIH): SDSU MARC U*STAR 5T34GM008303

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Date submitted: 04 Jan 2021

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