

Abstract Submitted
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Searching for Q-balls with HAWC PETER KARN, University of California, Irvine, HIGH ALTITUDE WATER CHERENKOV COLLABORATION — The High Altitude Water Cherenkov (HAWC) Observatory is a gamma-ray experiment currently under construction at Sierra Negra in the state of Puebla, Mexico. Once completed, it will consist of a 20,000 square meter array of 300 water Cherenkov detectors. Although the HAWC Observatory is designed to study gamma rays from galactic and extra-galactic sources, the large instrumented volume of water gives the opportunity to search for more exotic species. One such target, predicted by several varieties of supersymmetric theory, is the Q-ball. Q-balls are very massive, sub-relativistic particles that can have a large baryon number, and can be stable since their creation in the early universe. They are also an appealing candidate for the dark matter of the universe, but their large masses must mean that their flux is very low. The data acquisition system of the HAWC Observatory is flexible enough that, with a dedicated trigger algorithm for non-relativistic particles, it allows the search for Q-balls traversing the detector. The trigger algorithm and preliminary analysis will be presented.

Peter Karn
University of California, Irvine

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