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Searching for Very High Energy Emission from Pulsars Using the High Altitude Water Cherenkov (HAWC) Observatory

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There are currently over 150 known gamma-ray pulsars. While most of them are detected only from space, at least two are now seen also from the ground. MAGIC and VERITAS have measured the gamma ray pulsed emission of the Crab pulsar up to hundreds of GeV and more recently MAGIC has reported $> 1\text{TeV}$ emission. Furthermore, in the southern hemisphere, H.E.S.S. has detected the Vela pulsar above 30 GeV. In addition, non-pulsed TeV emission coincident with pulsars has been detected by many groups, including the Milagro Collaboration. These GeV-TeV observations open the possibility of searching for very-high-energy (VHE, $> 100\text{ GeV}$) pulsations from gamma-ray pulsars in the HAWC field of view. This work will present a preliminary analysis of the partial array of HAWC, HAWC-111 dataset, to search for very high energy emission, in particular, for the Crab pulsar.

Collaboration

HAWC

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Author: Dr ALVAREZ, César (Facultad de Ciencias en Física y Matemáticas, Universidad Autónoma de Chiapas, México.)

Co-authors: Dr CARRAMIÑANA, Alberto (Instituto Nacional de Astrofísica, Óptica y Electrónica, Tonantzintla, Puebla, México.); Dr BELFIORE, Andrea (INAF/IASF Milano, Italy); Dr RIVIÈRE, Colas (Department of Physics, University of Maryland, College Park, MD, USA.); Dr MORENO, Eduardo (Facultad de Ciencias Físico Matemáticas, Benemérita Universidad Autónoma de Puebla, México.); Dr SAZ PARKINSON, Pablo (Santa Cruz Institute for Particle Physics (SCIPP) University of California, Santa Cruz, California, USA. Department of Physics, University of Hong Kong, Pokfulam Road, Hong Kong)

Presenter: Dr ALVAREZ, César (Facultad de Ciencias en Física y Matemáticas, Universidad Autónoma de Chiapas, México.)

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