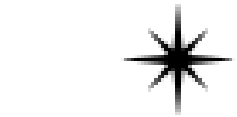

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Development of an analytical model for TeV Halos

Thursday 8 September 2022 09:00 (20 minutes)

TeV Halos are regions of extended emission around pulsars, produced due to inverse-Compton scattering of photons by particles accelerated inside and diffused away from the pulsar wind nebulae. TeV Halos, discovered in 2017 by the HAWC Collaboration, represent a possible detection tool for "silent"pulsars, those whose radiation jets are never oriented towards Earth. In addition, TeV Halos are very energetic cosmic accelerators and represent an uncharacterized population of gamma-ray sources that contribute to the galactic and extragalactic diffuse gamma-ray background. Finally, given their high-energy emission, these halos are potential probes for the search for Dark Matter. Thus, improvement of techniques to search for Halos is very important. In this work, we present a simulation of the gamma-ray emission of Geminga and Monogem side-by-side with the observations by HAWC. We use a simplified model for the emission based on pulsar characteristics. This project was supported by DGAPA PAPIIT IG101320.

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