Contribution ID: **1140** Type: **Talk**

HAWC J2227+610: a potential PeVatron candidate for the CTA in the northern hemisphere

Wednesday, 14 July 2021 12:48 (12 minutes)

Recent observations of VER J2227+608 and the associated supernova remnant G106.3+2.7 by the High Altitude Water Cherenkov (HAWC) observatory confirm the special interest of this source as a Galactic PeVatron candidate in the northern hemisphere. HAWC J2227+610 emits VHE gamma-ray emission, above 100 TeV, from a region coincident with molecular clouds and shows a hard energy spectrum without clear cutoff. This has induced several authors to suggest or claim a potential hadronic origin for its gamma-ray emission. CTA could play a crucial role to understand the particle acceleration mechanisms behind this source thanks to its improved sensitivity with respect to the present IACT generation. The purpose of this work is to investigate the potentiality of CTA to observe HAWC J2227+610 and to disentangle the different suggested scenarios of hadronic and leptonic emission. In particular we study the capability in resolving the morphology of this source and its eventual energy dependence taking advantage of the unprecedent angular resolution. The study is based on simulations; the CTA prototype science tool *gammapy* is employed.

Keywords

PeVatrons, CTA

Collaboration

CTA

other Collaboration

Subcategory

Future projects

Primary author: VERNA, Gaia

Co-authors: Dr CASSOL, Franca (Aix Marseille Univ, CNRS/IN2P3, CPPM); Dr COSTANTINI, Heide (Aix Marseille Univ, CNRS/IN2P3, CPPM)

Presenter: VERNA, Gaia

Session Classification: Discussion

Track Classification: Scientific Field: GAI | Gamma Ray Indirect