

## A GeV to TeV view of shell-type SNRs

---

**Henrike Fleischhack\*** on behalf of the HAWC Collaboration and the Fermi-LAT Collaboration

(a complete list of authors can be found at the end of the proceedings)

*Catholic University of America, Department of Physics  
620 Michigan Ave. N.E., Washington, DC 20064, USA*

*NASA Goddard Space Flight Center,  
8800 Greenbelt Rd, Greenbelt, MD 20771, USA*

*Center for Research and Exploration in Space Science and Technology,  
8800 Greenbelt Rd, Greenbelt, MD 20771, USA*

*E-mail: [fleischhack@cua.edu](mailto:fleischhack@cua.edu)*

### Executive Summary

Shock acceleration by the shells of supernova remnants (SNRs) has been hypothesized to be the mechanism that produces the bulk of Galactic Cosmic Rays, possibly up to PeV energies. But which SNRs are indeed efficient accelerators of protons and nuclei? And what is the maximum energy up to which they can efficiently accelerate particles? Measurements of non-thermal emission, especially in the gamma-ray regime, are essential to answer these questions.

To answer these questions, we used data taken by the High-Altitude Water Cherenkov (HAWC) observatory to look for TeV gamma-ray emission from SNRs that have been detected in GeV gamma rays by *Fermi*-LAT.

In this poster, we focus on ten GeV-emitting SNRs that are not significantly detected by HAWC. Assuming the same morphology as seen in GeV gamma rays, we do not detect any evidence for sub-threshold TeV gamma-ray emission in this sample. (Full results including upper limits on the TeV gamma-ray flux and (where available) upper limits on the cutoff energy will be presented in a paper, currently under preparation.)

*37<sup>th</sup> International Cosmic Ray Conference (ICRC 2021)  
July 12th – 23rd, 2021  
Online – Berlin, Germany*

---

\*Presenter