

Searching for >100 TeV emission in the vicinity of Mrk 501 with HAWC

Friday 16 July 2021 19:18 (12 minutes)

The High Altitude Water Cherenkov (HAWC) Observatory surveys 2/3 of the gamma-ray sky each day for gamma rays from 300 GeV to over 100 TeV. Using recently improved energy reconstruction, HAWC has detected several Galactic sources with emission above 100 TeV. We extend this analysis to search for >100 TeV emission in the vicinity of Mrk 501. High-energy emission from Mrk 501 could, for example, be evidence of Axion Like Particles, a theoretical dark matter candidate. We found a hint of two >100 TeV lobes about 0.5 degrees above and below Mrk 501. Specifically, a preliminary analysis shows that the flux of each of the potential lobes has a pretrials significance of ~ 3 sigma above the background assuming a power law flux with and index of -2. We will summarize our analysis and discuss potential origins of this emission.

Keywords

Collaboration

HAWC

other Collaboration

Subcategory

Experimental Results

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Session Classification: Discussion

Track Classification: Scientific Field: GAI | Gamma Ray Indirect