

## Limits on the Diffuse Gamma-Ray Background with HAWC

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### Executive summary

Gamma rays from the isotropic interaction of high-energy cosmic rays with matter and radiation in our Galaxy are expected to be the main provenance of the Diffuse Gamma-Ray Background (DGRB). However, if dark matter from an extended halo around the Galaxy were to annihilate or decay to produce a diffuse gamma-ray emission, dark matter would be a likely candidate for any observed high-energy DGRB emission.

We perform a maximum likelihood analysis on 535 days of data from the High Altitude Water Cherenkov (HAWC) observatory with respect to chosen dark matter masses to calculate the 95% confidence level limits on isotropic and spatial-model independent gamma-ray emissions from galactic dark matter annihilation and decay interactions into bottom quarks and tau leptons. We then compare our results to recent dark matter searches with HAWC and other experiments.

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