

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**Probing the EBL near-IR region with HAWC** MATEO FERNANDEZ ALONSO, Pennsylvania State University — The extragalactic background light (EBL) is comprised of all the radiation emitted by nuclear and accretion processes since the epoch of recombination. Direct measurements of the EBL in the near-IR to mid-IR waveband are extremely difficult due, mainly, to the zodiacal light foreground. Instead, gamma-ray astronomy offers the possibility to indirectly set limits to the EBL by studying the effects of gamma-ray absorption in the spectra of distant blazars in the very high energy range (VHE:  $> 100$  GeV). HAWC is a water Cherenkov telescope that can detect extragalactic gamma rays significantly up to 10 TeV, making it one of the few instruments sensitive to gamma rays in the energy range  $> 5$  TeV. This offers the opportunity to probe the EBL in the near IR region:  $\lambda = 5 \mu\text{m} - 15 \mu\text{m}$ . In this study, we assume an intrinsic spectrum as the extrapolation of Fermi-LAT GeV spectrum and derive multiple absorbed spectra for different EBL models. We then calculate confidence bands in the EBL  $\lambda$ -intensity space by comparing and testing the agreement between the spectra and HAWC highest energy data bins.

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Date submitted: 10 Jan 2020

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