

Abstract Submitted
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Broadband modeling of the energy spectrum of the Supernova Remnant IC 443 LEAH HUNT, MIGUEL MOSTAFA, Pennsylvania State University, HAWC COLLABORATION — Supernova explosions often lead to the interaction between the supernova remnants (SNRs) and molecular clouds. Shocks in SNRs are one of the candidate sources of galactic cosmic rays, and these interaction sites provide a laboratory to study the energetics of these particle accelerators. The SNR IC 443 is one of the most thoroughly studied, and one of the clearest examples of interaction with molecular clouds. IC 443 radiates broadband emission from radio to gamma-rays, where it has been established as a strong emitter in the 1 to 50 GeV domain and in the 90 GeV to 2 TeV band. Our analysis of HAWC data extends the study of IC 443 up to tens of TeV. We will show that the multi-TeV emission as seen with HAWC is strongly correlated with the GeV morphology observed with Fermi-LAT and extends over the entire surface of the remnant. We will present the multi-wavelength non-thermal emission from radio to gamma-ray bands modeled through synchrotron, bremsstrahlung, inverse Compton, and pion-decay emission mechanisms.

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