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H.E.S.S. precision measurements of the SNR RX J1713.7-3946

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The shell-type supernova remnant (SNR) RX J1713.7-3946 is one of the brightest TeV gamma-ray sources in the Galaxy detected by the High Energy Stereoscopic System (H.E.S.S.). Despite extensive multi-wavelength coverage in gamma-rays, X-rays and lower energy regimes, the nature of the underlying gamma-ray radiation mechanisms is still under debate.

Here, we present new precision measurements, based on 150 hours of observations performed with the H.E.S.S. array in its 4-telescope configuration, and make use of new superior analysis techniques. The new results feature an improvement in the exposure by factors of 2 (sky images) to 4 (spectra) over previous measurements. These data allow for spectral and morphological studies at unprecedented precision, yielding the most detailed TeV gamma-ray analysis of any extended object in the sky. The angular resolution of better than 0.05 deg allows us to perform for the first time a detailed investigation of morphological differences between TeV gamma rays and X-rays.

Collaboration

H.E.S.S.

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