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Investigating Pulsar Wind Nebula DA 495: Insights from LHAASO and Multi-Wavelength Observations

Pulsar wind nebulae are bubbles of magnetized electron-positron plasma formed by interaction between ultrarelativistic pulsar winds and environmental materials. Their emissions cover a wide range of wavelength, and especially their persistent gamma-ray emissions make it essential to model their properties accurately for a proper interpretation of the visible Galaxy. From previous observations, DA 495 has been identified as a PWN, despite no evidence of pulsations from its associated pulsar has been detected. In this study, we investigate DA 495 based on multi-wavelength observations. We report LHAASO observations of DA 495, which is cataloged as 1LHAASO J1952+2922 in the first LHAASO source catalog. Additionally, we conduct an X-ray analysis using Chandra and XMM-newton data, along with a high-energy γ -ray analysis using Fermi-LAT data. Based on these observations, we discuss the radiation mechanism and explore the properties of DA 495.

Collaboration(s)

LHAASO

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