

Multiwavelength studies of Galactic PeVatron candidates with VERITAS

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The spectral change of the cosmic ray flux at 10^{15} eV (PeV) has been suggested as an indication of the maximum energy obtainable by Galactic accelerators. Since leptonic particles lose their energies rapidly as their energies increase, the detection of hard-indexed gamma-ray emission beyond ~ 100 TeV may indicate that those sources accelerate hadronic particles up to the PeV energy range. Recent results from ground-based air shower gamma-ray observatories, such as HAWC and LHAASO, have revealed a few of these PeVatron candidates. Combined information from multi-wavelength observations is essential to probe the nature of these PeVatron candidates. Observations with imaging atmospheric Cherenkov telescopes (IACTs) provide further information about the spatial and spectral energy distributions of the gamma-ray emission from these sources since IACTs have better angular resolution and better sensitivity from ~ 100 GeV up to ~ 10 TeV compared to the air shower gamma-ray observatories. Meanwhile, observations of non-thermal X-ray emission provide properties of the leptonic particles around the source regions, allowing modelling of the expected leptonic contributions at TeV energies. Here, we present the status of VERITAS observations of the PeVatron candidates including follow-up observations of LHAASO sources, and multi-wavelength studies of the Boomerang pulsar wind nebula.

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