

Z211r Highlighting recent X-ray observations of Galactic PeVatrons

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The recent discovery of ~ 50 ultra-high-energy (UHE; $E_\gamma > 100$ TeV) gamma-ray sources and neutrino emission in the Galactic Plane has provided compelling evidence for the existence of Galactic PeVatrons. Previous studies of TeV gamma-ray sources have demonstrated that X-ray observations play a crucial role in identifying these extreme particle accelerators by detecting synchrotron emission from primary and secondary TeV-PeV electrons. In particular, a combination of broadband spectral energy distributions (SEDs) and morphological data in the X-ray and TeV bands is a powerful tool for investigating particle acceleration and emission mechanisms. In this review talk, I will highlight recent X-ray observations of Galactic PeVatrons, including (1) multi-epoch NuSTAR hard X-ray observations of young supernova remnants, (2) multi-wavelength observations of pulsar wind nebulae associated with UHE sources, (3) X-ray investigations of new PeVatron classes (e.g., microquasars), and (4) searches for X-ray counterparts of unidentified or dark Galactic PeVatrons. Finally, I will discuss the prospects of X-ray astrophysics in advancing our understanding of Galactic PeVatrons.