

Z203a XRISM/Xtend observations of diffuse X-ray emission around microquasars

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Recent detection of very-high-energy gamma-rays exceeding 10 TeV from several microquasars suggests that microquasars are accelerating particles with the energies reaching PeV. Given that particles are indeed accelerated around microquasars, synchrotron X-rays from primary or secondary electrons are also expected. We have observed two bright gamma-ray-emitting microquasars V4641 Sgr and SS433/W50 regions with the X-Ray Imaging Spectroscopy Mission (XRISM), whose instruments include large field-of-view, low-background CCD imager named Xtend. In our study of V4641 Sgr, we successfully detected for the first time X-ray emission extending to ≈ 7 arcmin around V4641 Sgr with a significance of $> 10\sigma$ (Suzuki et al., ApJL, 2025). The X-ray luminosity and size would require jet luminosities of $\sim 10^{39}$ erg s $^{-1}$ (\sim Eddington luminosity; if the X-rays are thermal) or $\sim 10^{37}$ erg s $^{-1}$ (if non-thermal). The 4–6 keV Xtend image of the SS433/W50 region revealed faint diffuse emission within ≈ 15 arcmin from SS433, which is inside the stems of the X-ray jets. The excess emission shows a hard spectrum with a power-law index of ≈ 1.4 . The flux varies azimuthally with maximals corresponding to the jet directions. We will discuss our XRISM results so far and future observation plans.