

W29a 2018 outburst of black hole candidate: MAXI J1727–203

WANG Sili (Tokyo Tech), KAWAI Nobuyuki (Tokyo Tech), SHIDATSU Megumi (Ehime Univ), MURATA Katsuhiro (Tokyo Tech), HANAYAMA Hidekazu (NAOJ), HORIUCHI Takashi (NAOJ), MORIHANA Kumiko (Nagoya Univ)

We report on the X-ray spectral analysis and time evolution of MAXI J1727–203 based on NICER/XTI and MAXI/GSC observations. Over the course of the outburst, a state transition from low/hard to the high/soft state and then back to the low/hard state was seen, and a non-thermal component is always required to represent the hard tail in spectral fitting. During the high/soft state, the innermost radius estimated with the multi-color disk model remained constant at $\sim 132.2 \left(\frac{D}{10 \text{ kpc}}\right) \left(\frac{\cos i}{\cos 0^\circ}\right)^{-1/2}$ km, where D is the source distance and i is the inclination of observation. Assuming the central object is a Schwarzschild black hole and the inclination is $0^\circ - 60^\circ$, in combination with the empirical ratio between the transition luminosity to the Eddington luminosity, the black hole mass is constrained to be $4.0 M_\odot - 33.3 M_\odot$ for a distance of $2.3 - 13.1$ kpc. From the fitting results of multi-wavelength spectra including near-infrared, optical and X-ray data, we discussed black hole mass and source distance assuming both accretion disk and companion star fill up their Roche lobe. A faint companion star is preferred suggested by the fact that PanSTARRS didn't observe it.