

N05a XRISM and CHAO observations of HR1099

Nagisa Nagashima, Yohko Tsuboi, Yukiko Ishihara, Haruka Sugai (Chuo Univ.), Miki Kurihara, Masahiro Tsujimoto, Yoshitomo Maeda (JAXA/ISAS), Michael Loewenstein (GSFC, Univ. of Maryland), and XRISM HR1099 team

HR 1099 (V711 Tau) is one of the most active RS Canum Venaticorum binaries with orbital period of 2.8377 days, and has been extensively studied with various wavelengths. It is a non-eclipsing, double-lined spectroscopic binary with a K0 – K1 subgiant as primary and a G5 dwarf as secondary in an almost circular orbit (Fekel 1983). We observed this object from 6th to 10th April with XRISM, as one of the calibration target. We attempted to conduct simultaneous optical observations using CAT and SCAT in CHAO (CHuo-university Astronomical Observatory) at Chuo university Korakuen campus. The attempt succeeded only at 9th and 10th March, because of the bad weather, but we could continuously monitor the target from 2023 September to 2024 March. During the XRISM observations, we detected one flare. The flux was increased from 7th, and peaked at 8th, and finally decayed to the pre-flare level within 50000 sec from the peak. The peak flux is $1 \times 10^{-10} \text{ erg s}^{-1} \text{ cm}^{-2}$, which corresponds to the luminosity of $1 \times 10^{31} \text{ erg s}^{-1}$ with assuming the distance is 29 pc (Perryman et al. 1997). We found the flare occurred around the phase 0.0, i.e. when the K supergiant is in front of us, by extrapolating the radial velocity curve in Frasca & Lanza (2005). From the Resolve and Xtend light curves, we found an X-ray enhancement after the flare, at the opposite phase (the phase ~ 0.5), and also another weak enhancement before the flare, again at the opposite phase (the phase ~ 0.5).