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Swift Observations of MAXI J1957+032 during its 2022 outburst

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Swift Observations of MAXI J1957+032 during its 2022 outburst

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on 20 Jun 2022; 14:58 UT

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Subjects: Ultra-Violet, X-ray, Transient

Referred to by ATel #: [15448](#), [15457](#)

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MAXI J1957+032 has been reported to be in a new outburst by the MAXI/GSC (ATel #15440). On 2022 June 19 the NICER X-ray telescope detected MAXI J1957+032 with a 0.3-10 keV flux of $2.5e-10$ erg/s/cm². In addition, 314 Hz pulsations were discovered, making it an accreting millisecond X-ray pulsar (Atel #15444).

The Swift X-ray telescope observed MAXI J1957+032 on 2020 June 20. Observations with Swift/XRT were made in the Windowed Timing Mode with an exposure time of ~1.5 ks. The target was detected with an average source count rate of ~6 c/s (0.5-10 keV). An absorbed power-law model provided a good fit to the XRT spectrum in the 0.7-10 keV band, with a chi-squared value of 243 for 233 degrees of freedom. We measure an absorption column density of $nH = 0.23 (-0.02, +0.03) \times 10^{22}$ cm⁻², a photon index of 2.06 ± 0.06 . The unabsorbed 0.5-10keV flux of $(3.43 \pm 0.01) \times 10^{-10}$ erg/s/cm² is observed. These spectral parameters are consistent with that observed during its previous outburst in 2016 at similar flux levels (Beri et al. 2019, MNRAS, 486, 1620)

The source was also detected with Swift/UVOT with source position consistent with the previously reported Swift position of this X-ray transient (e.g., Cherepashchuk et al. Atel #7506). We find the following magnitude in the AB system: UVW2 = 20.37 +/- 0.08 (not corrected for extinction).

Further Swift observations are planned.

Acknowledgement: We thank the Swift team members for scheduling the ToO observation.

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