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### Swift follow-up of the Symbiotic Binary HBHa 1704-05

Parikh, A.S.; Wijnands, R.

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## Swift follow-up of the Symbiotic Binary HBHa 1704-05

ATel #11997; *A. S. Parikh, R. Wijnands (UvA)*  
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Subjects: Ultra-Violet, X-ray, Binary, Cataclysmic Variable, Variables

Munari et al. (ATel #11937) reported that the emission line source HBHa 1704-05 is likely a symbiotic binary. The source is currently experiencing a 'hot-type' outburst, since 2018 Aug 9 (ATel #11937). We requested follow-up observations of the source using the Neil Gehrels Swift Observatory. Our observations were carried out ~19 days (on 28 Aug 2018) after the reported start of the outburst. The AAVSO (<https://www.aavso.org/lcg>) and ASASSN (<https://asassn.osu.edu/>) light curves of this source suggest that it has maintained a similar optical brightness as reported during ATel #11937.

We obtained photometry in two UV bands using the Ultraviolet and Optical Telescope (UVOT). The source was detected at  $13.27 \pm 0.05$  mag in the um2 band and at  $13.20 \pm 0.05$  mag in the uw2 band. We also obtained a UV spectrum (1650-5000 Å) using the UVOT grism. Our spectrum shows lines similar to those reported by Munari et al. (ATel #11937) in the overlapping wavelength range. A full analysis of the spectrum is in progress. The UV spectrum resembles that of the symbiotic binary CI Cyg (e.g., Mikolajewska et al. 2003, Stencel et al. 1983).

The source was also detected by the X-ray Telescope (XRT) at ~0.01 c/s (0.5-10 keV). Unfortunately, the X-ray spectral shape of the source could not be constrained as not enough photons were collected during the observation. Assuming a power law model with an index of 2 and a column density of  $2 \times 10^{21} \text{ cm}^{-2}$ , we obtained (using WebPIMMS) an unabsorbed flux of  $F_x \sim 5 \times 10^{-13} \text{ erg/cm}^2/\text{s}$  (0.5-10 keV). Assuming that the source is at ~3.6 kpc (ATel #11937), the corresponding 0.5-10 keV luminosity is  $\sim 8 \times 10^{32} \text{ erg/s}$ .

We thank the Swift team for scheduling our observations.

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`rrutledge@astronomerstelegam.org`

`dfox@astronomerstelegam.org`

`mansi@astronomerstelegam.org`