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Radio Non-Detection of the New Swift Bulge Survey Transient, Swift J175233.9-290952

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Publication date

2017

Document Version

Final published version

Published in

The astronomer's telegram

License

Unspecified

[Link to publication](#)

Citation for published version (APA):

Tetarenko, A. J., Sivakoff, G. R., Heinke, C. O., Shaw, A. W., Bahramian, A., Strader, J., Kennea, J. A., Maccarone, T. J., Wijnands, R., Degenaar, N., In't Zand, J. J. M., & Kuulkers, E. (2017). Radio Non-Detection of the New Swift Bulge Survey Transient, Swift J175233.9-290952. *The astronomer's telegram*, 10422.
<http://www.astronomerstelegam.org/?read=10422>

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Radio Non-Detection of the New Swift Bulge Survey Transient, Swift J175233.9-290952

ATel #10422; *A. J. Tetarenko, G. R. Sivakoff, C. O. Heinke, A. W. Shaw (Alberta), A. Bahramian, J. Strader (Michigan State), J. A. Kennea (Penn State), T. J. Maccarone (Texas Tech), R. Wijnands, N. Degenaar (Amsterdam), J. J. M. in 't Zand (SRON), and E. Kuulkers (ESA)*

on 24 May 2017; 22:55 UT

Credential Certification: *Alexandra Tetarenko (tetarenk@ualberta.ca)*

Subjects: Radio, X-ray, Black Hole, Neutron Star, Transient

Referred to by ATel #: [10428](#), [12751](#)

We report follow-up VLA radio observations of the new X-ray transient, Swift J175233.9-290952, discovered with the Swift Bulge Survey (ATel # [10355](#)). Our VLA observations occurred on 2017 May 13, with scans on source between 10:13:06-11:12:54 UTC (MJD=57886.43-57886.47), in X band (8-12 GHz). The array was in the D configuration during our observations.

We do not significantly detect a radio source (in the combined base-band data at 10 GHz) within the X-ray error circle reported in ATel # [10355](#); we estimate a 3 sigma upper limit on the source flux density of ~15 microJy/bm. This upper limit is equivalent to a radio luminosity ($L_{r=nu} L_{nu}$) of ~1.8e26 (d/8kpc)² erg/s at 10 GHz.

To make a preliminary classification of the source, we place this object on the L_r - L_x plane (see [figure here](#); the red line displays the location of the source at various distances from 2 kpc to 12 kpc), by considering the radio luminosity upper limit at 5 GHz (assuming a flat spectrum) of 8.5e25 (d/8 kpc)² erg/s, and the 1.0-10 keV X-ray luminosity of 1.4e34 (d/8 kpc)² erg/s (from the closest Swift observation on May 10th). Based on these measurements, and considering potential distances of 2 - 12 kpc, Swift J175233.9-290952 is not a typical (radio-loud) black hole X-ray binary. We cannot distinguish between the possibilities of a radio-quiet black hole X-ray binary, tMSP, AMXP, or a non-pulsating neutron star X-ray binary.

We thank the NRAO staff for rapidly scheduling our observations.

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