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Candidate near-infrared counterpart to the faint transient neutron star X-ray binary SAX J1806.5-2215

ATel #3268; [Kaur, R. \(University of Amsterdam, University of Wisconsin - Milwaukee\); Kotulla, R. \(University of Wisconsin - Milwaukee\); Degenaar, N. \(University of Amsterdam\); Wijnands, R. \(University of Amsterdam\); Kaplan, D. \(University of Wisconsin - Milwaukee\)](#)

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We report on the near-infrared Ks band observations of the field containing the currently active faint neutron star X-ray transient SAX J1806.5-2215 (Atel # [3193](#)).

Following the current X-ray outburst of the source, we obtained observations in the near-infrared Ks band on March 23, 2011 at UT 12:24 using the WIYN High-Resolution Infrared Camera (WHIRC) mounted on the WIYN 3.5-m telescope located at Kitt Peak, Arizona. The source was observed for a total exposure time of 760 s, consisting 19 frames of 40 s each. The observations were obtained with a seeing of 0.6" and the sky conditions were photometric. The astrometric calibration of the final science frame was done using the 2MASS stars in the field of view which delivered a position accuracy of < 1.0".

We searched for the counterpart at the recently reported sub-arcsecond position obtained from a Chandra observations of the source (Atel # [3218](#)). During our observations, we found a point-like source with a Ks magnitude of 17.69 +/- 0.08 mag at RA:18h 06m 32.168s and DEC:-22d 14m 17.42s, consistent with the Chandra error circle of the source. To confirm it as a possible counterpart, we compared our data to the pre-outburst UKIDSS K band data of the source taken on July 23, 2006 at UT 09:14. The candidate counterpart was not detected in the UKIDSS images down to the limiting magnitude of 18.2 mag.

The position coincidence and the variability of the source suggest it is indeed the near-infrared counterpart of SAX J1806.5-2215.

[finding chart](#)

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