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Wijnands, R.A.D.; Groot, P.J.; Miller, J.; Markwardt, C.B.; Lewin, W.H.G.; van der Klis, M.

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The likely optical counterpart of X-ray transient KS 1731-260

ATEL # 72; Rudy Wijnands (MIT), Paul J. Groot (CFA), Jon J. Miller (MIT), Craig Markwardt (GSFC), Walter H. G. Lewin (MIT), Michiel van der Klis (Amsterdam) on 25 Jul 2001; 21:04 UT

Password Certification: Rudy Wijnands (rudy@space.mit.edu)

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During our 27 March 2001 Chandra observation of the neutron star X-ray transient KS 1731-260, two X-ray sources were detected (Wijnands et al. 2001, ApJL submitted, astro-ph/0107380). One of those sources is very likely a star in the USNO A2.0 optical catalog (Monet et al. 1998, USNO-SA2.0, U.S. Naval Observatory, Washington DC) and in the Two Micron All Sky Survey (2MASS) point source catalog with a position (from 2MASS) of R.A = 17h34m12.70s, Dec. = -26d05m48.4s (+/- 0.2 arcseconds). If this identification is correct, then there is an offset between the 2MASS and the Chandra positions. Applying the same offset to the primary Chandra source, we find for its position: R.A. = 17h34m13.47s, Dec. = -26d05m18.8s, with an error of approximately 0.4 arcseconds. This X-ray source is very close to the center of the ROSAT/HRI error circle of KS 1731-260 (Barret et al. 1998. A&A 329, 965) and the source detected with Chandra is almost certainly this source (see also Wijnands et al. 2001).

To search for the optical counterpart of KS 1731-260 in quiescence, we made observations on June 29-30, 2001, using the Magellan Walter Baade telescope in combination with the MagIC CCD camera. A very weak optical source is present in the Chandra error circle for KS 1731-260 when the X-ray image is overlaid onto the optical images (see the I band image; the small circle is the Chandra error circle and the large one the ROSAT/HRI error circle of Barret et al. 1998). The conditions were not photometric, so no accurate magnitudes can be quoted. The X-ray source can also be identified with a weak infrared star in the images presented by Barret et al. (1998; in between their star G and H, which can both be excluded as the infrared counterpart of KS 1731-260; see the I band image). High sensitivity optical spectra
are desirable during the quiescent state of KS 1731-260 to confirm this tentative optical identification, to determine the spectral type of the companion star, and to constrain the orbital parameters.