

Central Bureau for Astronomical Telegrams

INTERNATIONAL ASTRONOMICAL UNION

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SUPERNOVA 2014J IN M82 = PSN J09554214+6940260

Stephen J. Fossey, University of London Observatory (ULO), University College, London, reports the discovery of an apparent supernova (magnitude  $R = 10.5$ ) in the galaxy NGC 3034 = M82 on CCD images obtained by himself (and assisted by students B. Cooke, G. Pollack, M. Wilde, and T. Wright) in poor sky conditions with a ULO 35-cm Schmidt-Cassegrain telescope (+ SBIG STL-6303E camera) at Mill Hill, London, on Jan. 21.805 UT. The new object is located at R.A. = 9h55m42s.14, Decl. = 69d40'26".0 (equinox 2000.0), which is about 54" west and 21" south of the center of the galaxy M82. The variable was designated PSN J09554214+6940260 when it was posted at the Central Bureau's TOCP webpage and is here designated SN 2014J based on the spectroscopic confirmation reported below. A pre-discovery image taken by Marco Verstraaten (Twisk, The Netherlands; 30-cm reflector) on Jan. 18.977 UT has been posted at website URL [http://www.astropage.nl/nova/PSN\\_J09554214\\_6940260\\_astropage.jpg](http://www.astropage.nl/nova/PSN_J09554214_6940260_astropage.jpg).

Additional CCD magnitudes for 2014J: Jan. 12.09 and 12.13, [16 (Fossey; broad-band 'Luminance' filter; slightly defocussed images); 13.591 UT, [17.0 (K. Itagaki, Yamagata, Japan; 0.50-m reflector; host-galaxy light extracted using previous images; measured by H. Kaneda, Sapporo, Japan; communicated by H. Yamaoka, Kyushu University); 14.559, [17.0 (Itagaki); 15.571, 14.4 (Itagaki; pre-discovery image); 16.641, 13.9 (Itagaki; pre-discovery image); 17.612, 13.3 (Itagaki; pre-discovery image); 19.618, 12.2 (Itagaki; pre-discovery image); 20.620, 11.9 (Itagaki; pre-discovery image); 21.818,  $V = 11.7$  (Fossey); 22.150,  $B = 12.96$ ,  $V = 11.68$ ,  $R_c = 11.04$ ,  $I_c = 10.63$  (S. Kiyota, Kamagaya, Japan; remotely with an iTelescope 0.43-m astrograph + FLI-PL6303E camera near Mayhill, NM, USA; image posted at website URL [http://meineko.sakura.ne.jp/ccd/PSN\\_J09554214+6940260.jpg](http://meineko.sakura.ne.jp/ccd/PSN_J09554214+6940260.jpg)); 22.3,  $R = 11.0$  (Ernesto Guido, Nick Howes, and Martino Nicolini; iTelescope 0.50-m f/6.8 astrograph near Mayhill; position end figures 42s.17, 25".9; reference stars from UCAC-3 catalogue; image posted at URL <http://bit.ly/1aIuXPr>; animated image show a comparison with a red Digitized Sky Survey plate from 1998 is posted at URL <http://bit.ly/KDLScg>); 22.396,  $B = 12.9$  (L. Elenin, Lyubertsy, Russia, and I. Molotov, Moscow; remotely taken with a 0.4-m f/3 telescope at the ISON-NM Observatory near Mayhill; position end figures 42s.15 +/- 0".13, 25".8 +/- 0".11; UCAC-4 reference stars; image posted at website URL <http://spaceobs.org/images/TOCP/PSNJ09554214+6940260-20140122.png>); 22.406,  $R = 11.3$  (Elenin and Molotov); 22.407,  $I = 11.3$  (Elenin and Molotov); 22.410,  $V = 11.7$  (Elenin and Molotov); 22.435, 10.9 (Joseph Brimacombe, Cairns, Australia; remotely using a 43-cm CDK telescope + STL-6303 camera + infrared filter at the New Mexico Skies observatory near Mayhill; bandpass > 700 nm; image posted at URL <http://www.flickr.com/photos/43846774@N02/12094731156/>); 22.466, 11.6 (Brimacombe; 51-cm telescope + STXL-6303 camera + clear filter; image posted at <http://www.flickr.com/photos/43846774@N02/12086849523/>); 22.490, 11.4 (Toshihide Noguchi, Katori, Chiba-ken, Japan; 0.23-m f/6.3 Schmidt-Cassegrain reflector + BITRAN BT-11E camera; limiting mag 17.5; position end figures 42s.18, 25".8; offset 55" west, 21" south of the galaxy center; reference stars from UCAC4 catalogue; image posted at website URL <http://park8.wakwak.com/~ngc/images/PSNinM82.jpg>; communicate by S. Nakano, Sumoto, Japan); 22.727, 11.2 (Gianluca Masi, Francesca Nocentini, and Patrick Schmeer; remotely with a 43-cm telescope near Ceccano, Italy; position end figures 42s.14, 25".9); 22.787,  $B = 12.83$ ,  $V = 11.49$ ,  $R_c = 10.86$ ,  $I_c = 10.47$

(U. Munari, INAF, Padova; and F. Castellani, R. Belligoli, G. L. Righetti, ANS Collaboration; 0.4-m telescope); 22.823, B = 12.8 (A. Oksanen, Muurame, Finland; via E. O. Waagen, AAVSO); 22.827, V = 11.5 (Oksanen); 22.830, R = 10.8 (Oksanen); 22.832, I = 10.2 (Oksanen); 22.915, B = 12.76, V = 11.48, R<sub>c</sub> = 10.79, I<sub>c</sub> = 10.43 (Munari et al.).

G. Dhungana, Southern Methodist University; J. M. Silverman, University of Texas at Austin; J. Vinko, University of Szeged; J. C. Wheeler and G. H. Marion University of Texas at Austin; and R. Kehoe and F. V. Ferrante, Southern Methodist University, on behalf of the ROTSE collaboration, report the pre-discovery detection of PSN J09554214+6940260 = SN 2014J in unfiltered images taken with the 0.45-m ROTSE-IIIb telescope located at McDonald Observatory. Available magnitudes: Jan. 7.340 UT, [14.6; 15.378, 13.5; 17.300, 12.4. They add that, given the brightness of the host galaxy (M82) and the complexity of the field, there is likely some host-galaxy light included in these reported magnitudes due to subtraction artifacts.

R. Itoh, K. Takaki, T. Ui, and K. S. Kawabata, Hiroshima University; and M. Yamanaka, Kyoto University, obtained a low-resolution optical spectrogram (range 480-900 nm) of PSN J09554214+6940260 = SN 2014J on Jan. 22.4 UT with the 1.5-m Kanata telescope (+ HOWPol) at the Higashi-Hiroshima Observatory. A comparison with a library of supernova spectra using GELATO (Harutyunyan et al. 2008, A.Ap. 488, 383) suggests that the spectrum is consistent with that of a high-velocity type-Ia supernova a week before maximum. The best match is with SN 2002dj at eight days before B-band maximum. After correction of the recession velocity of the host galaxy, it exhibits an absorption line of Si II 635.5-nm at 604 nm, which corresponds to a line velocity of -15000 km/s.

K. Ayani, Bisei Astronomical Observatory (BAO), Ibara, Okayama, Japan, obtained a low-resolution spectrogram (range 400-800 nm; resolution 0.6 nm at H-alpha) of PSN J09554214+6940260 = SN 2014J with the BAO 1.01-m telescope on Jan. 22.5 UT. The spectrum is that of a type-Ia supernova around or several days before maximum, using SNID (Blondin and Tonry 2007, Ap.J. 666, 1024). Assuming that a heliocentric velocity for M82 of 203 km/s (de Vaucouleurs et al. 1991, RC3.9; via NED), the blueshift of the Si II 635.5-nm absorption minimum is about 14000 km/s. The spectrum has deep Na D absorption.

Y. Cao, California Institute of Technology; M. M. Kasliwal, Carnegie Institution and Princeton University; A. McKay, University of Texas at Austin; and A. Bradley, Apache Point Observatory, on behalf of the "intermediate Palomar Transient Factory" (iPTF) Collaboration, report that a spectrogram of PSN J09554214+6940260 = SN 2014J, obtained on Jan. 22.305 UT with the Dual Imaging Spectrograph on the ARC 3.5-m telescope, indicates that the variable is a type-Ia supernova with a Si II velocity of 20000 km/s. The best superfit match (cf. website URL <http://www.dahowell.com/superfit.html>) is to SN 2002bo at -14 days. SN 2014J has a red continuum and deep Na D absorption. SN 2014J is not visible in an iPTF image of M82 taken on Jan. 12 (limiting red mag 20.4).

NOTE: These 'Central Bureau Electronic Telegrams' are sometimes superseded by text appearing later in the printed IAU Circulars.

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