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V5588 SAGITTARII

U. Munari, Istituto Nazionale di Astrofisica, Padova Astronomical Observatory; N. M. Ashok and D. P. K. Banerjee, Physical Research Laboratory, India; and G. L. Righetti, S. Dallaporta, G. Cetrulo, and A. Englaro, ANS Collaboration, write: "V5588 Sgr (= Nova Sgr 2011 No. 2; cf. IAUC 9203) continues to surprise observers. It has just gone through a third maximum in brightness and is now rapidly settling back onto the normal exponential decline that it was otherwise following. As monitored by the telescopes of the ANS Collaboration, the peak brightness of this third maximum occured around May 22.0 UT at V = 12.23, B-V = +1.91, V-R_c = +1.58, V-I_c = +2.43 (2.5 mag brighter than the extrapolated underlying smooth decline). The latest measurements put the nova at V = 14.37, B-V = +1.40, V-R_c = +3.25, V-I_c = +2.94 on May 26.0 UT. The brightness and color evolution of the third maximum has been a close replica of the second one that we discovered earlier (cf.CBET 2707). The time span between the first and second maxima was 18 days, and between the second and the third, 27 days. Medium-resolution spectroscopy (0.12 nm/pixel; range 480-758 nm) obtained on May 24.98 UT with the GAPC 0.7-m reflector shows a spectrum dominated by hydrogen (H_beta, H_alpha) and helium emission lines (587.6, 667.8, 706.5 nm). As for the decline from the second maximum (cf. CBET 2720; http://www.astronomerstelegram.org/?read=3345), the emission profile of hydrogen lines is composed of a stronger and narrower component with a FWHM of 1050 km/s, on top of a broader and weaker component with a FWHM of 2700 km/s and a full-width-at-zero-intensity (FWZI) of 4700km/s. Both components have Gaussian-like profiles. Helium lines show also double-component profiles, composed by a weaker and narrower Gaussian-like component with a FWHM of 1100km/s appearing on top of a stronger and broader, flat-topped component with a FWZI of 4100 km/s. The integrated absolute fluxes of the narrow and broad components of H_alpha and He I 706.5-nm are as follows, in units of 10**(-11) erg cm**(-2) s**(-1): H_alpha, narrow, 7.5; H_alpha, broad, 1.4; He I, narrow, 0.10; He I, broad, 0.20. Near-infrared (1.08- to 2.3-micron) spectroscopy also was obtained using the 1.2-m Mount Abu telescope

(+ NICMOS3 imager/spectrograph) of the Physical Research Laboratory. The spectra were taken on May 18.88 UT (about 3.1 days before the second rebrightening described above) and on May 23.81, 24.84, and 25.82 UT (subsequent to the second rebrightening). Spectra of all epochs are dominated by the H I lines of the Brackett and Paschen series. Other lines seen are He I (1.0830,

2.0581, 1.7002, 2.1120 microns) and O I (1.1287, 1.316 microns). Prominent emission is seen in the Fe II 1.6872- and 1.7413-micron lines (Banerjee et al. 2009, MNRAS 399, 357). The coronal line at 2.0894 microns, attributed to [Mn XIV], is also present at all epochs (see website URL http://www.astronomerstelegram.org/?read=3345). The spectra of the pre- and post-rebrightening event of May 22 show significant difference in profile structure. The H I lines of May 18.88 UT are composed principally of a single narrow gaussian component with a FWHM of 1025 km/s. In the later spectra of May 23.81, 24.84, and 25.82 UT, apart from the strong and narrow component described above, an additional, newly-developed, broad-but-relatively-weaker component with FWZI of about 4700 km/s is also seen. The evolution of the profiles is rather similar in the optical and near-infrared.

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