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The symbiotic star YY Her is in outburst

ATel #4996; ***U. Munari (INAF Padova-Asiago), S. Dallaporta, F. Castellani, R. Belligoli, G. Cherini, G. L. Righetti, M. Graziani, P. Valisa, A. Milani (ANS Collaboration)***
on 22 Apr 2013; 09:19 UT
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The symbiotic star YY Her is in outburst. The last outburst phase ended during 2006, and was characterized by three brightness maxima occurring in early 2003, mid-2004 and late 2005, with a separation of about 500 days among them. The last of these maxima occurred on 20 Nov 2005 at $B = 12.69$, $V = 11.92$, $I_c = 10.17$. After a flat quiescence period lasting 6 years, a new outburst phase began in 2011. A first maximum was reached on 5 Dec 2011 at $U = 12.24$, $B = 12.47$, $V = 11.78$, $R_c = 11.05$ and $I_c = 10.16$. The current bright phase is the second maximum of the new outburst chain phase. On 15 April 2013, at maximum brightness, we measured YY Her at $U = 12.59$, $B = 12.84$, $V = 12.11$, $R_c = 11.30$, $I_c = 10.31$. Interestingly, the separation between these two recent maxima is again about 500 days, as it was for the chain of three maxima during the 2003-2005 outburst phase. Such a separation is quite shorter than the 590 day orbital period established from the reflection effect and the ellipsoidal modulation observed in quiescence. A low resolution spectrum (4000-8660 Ang, 4.26 Ang/pix) and an Echelle H α profile of YY Her were obtained on 18 April 2013 with 0.6m telescope in Varese and the Multi Mode Spectrograph. Compared with our latest spectrum in quiescence, obtained with the Asiago 1.22m telescope on 22 Oct 2012, the integrated absolute flux of the HeII, HeI and Balmer emission lines has increased by a factor of 2.0, and the flux ratios HeII 4686/H β and HeI 5876/HeII 4686 have remained stable at 0.46 and 0.29, respectively. The flux of nebular [OIII] 5007, 4959 lines increased by 3.6 times, that of auroral [OIII] 4363 by just 1.4 times. The most striking change is the great increase in intensity of the fluorescence pumped NIII blend at 4640 Ang, which in YY Her is usually absent or much weaker during quiescence. The H α profile for the present and 2011 outbursts are nearly identical, with a sharp absorption component superimposed to a narrow emission and blue-shifted from its peak by 85 km/s. The equivalent width of the H α absorption component is reduced in comparison to quiescence conditions. No obvious P-Cyg features are observed.

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