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The symbiotic star TX CVn has entered an active state

ATel#5761; ***U. Munari (INAF Padova-Asiago), F. Castellani, P. Valisa, S. Dallaporta, G. Cherini, A. Vagnozzi, G. L. Righetti, R. Belligoli (ANS Collaboration)***
on 14 Jan 2014; 15:56 UT
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After the last active phase that began in 2003, the symbiotic star TX CVn has now entered a new active phase. In 2003, TX CVn rose to $B=10.5$ and there it remained until the end of 2007 (Skopal 2007, AN 328, 909), when we started monitoring the variable with various ANS Collaboration telescopes in BVRI bands. Our observations show that the star has spent the following 6 years on a steady decline at a rate of 0.084 mag per year in the B band, that took it from $B=10.55$ on December 2007 to $B=11.02$ on September 2013, when the star began a rapid brightening, reaching $B=10.65$ by early December 2013. Our last measurements for 12 and 13 January 2014 provide $B=10.72$, $B-V=+0.78$, $V-Rc=+0.62$, $V-Ic=+1.36$.

TX CVn is a enigmatic $P=199$ days binary star composed by a K5III and what looks like a B9 shell star (Kenyon and Garcia 1989, AJ 97, 194), engulfed by a large external dust shell at a temperature of 450 K (Kenyon 1988, AJ 96, 337). TX CVn remained around $B=11.8$ for the first half century of its long recorded photometric history. Then, around 1945 it began a slow and gradual rise in brightness that reached $B=10.1$ mag in 1967, a level at which the system remained until 1990 when a slow decline begun (Skopal 2005, Astron. Astrophys. 440, 995). On top of this, several outbursts occurred, the largest ones recorded on 1920, 1945, 1952, and 1962, when a peak brightness between $B=9.0$ and 9.5 mag was always attained.

A low resolution spectrum (range 3890-8520 Ang, dispersion 2.1 Ang/pix) of TX CVn has been obtained on 12 January 2014 with the Varese 0.61m telescope equipped with the Multi-Mode Spectrograph. At the shortest wavelengths, the spectrum shows a reinforced B9 shell spectrum, while the K5III continues to dominate in the red. Spectral monitoring with the Asiago 1.22m and 1.82m telescopes shows that over the period 2008-2013 the B9 shell spectrum smoothly declined in intensity, paralleling the decline in B-band brightness. The 12 January 2014 spectrum presents H α in moderate emission with a strong P-Cyg profile, blue-shifted by 330 km/s with respect to the emission component. No other emission line is readily visible.

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