

"The symbiotic binary and super-soft X-ray source AG Dra is going into outburst"

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The yellow symbiotic binary and luminous super-soft X-ray source AG Dra is on

a

steep rise in optical brightness, after seven years of flat quiescence following the 2006-08 multi-maxima outburst episode (Munari et al. 2009, PASP 121, 1070).

We are tightly monitoring AG Dra both photometrically and spectroscopically with

various ANS Collaboration telescopes and the Asiago 1.22m and 1.82m telescopes.

On March 8.923 UT, when the current brightening begun, we measured $B=11.301$,

$V=9.885$, $R_c=9.005$, and $I_c=8.367$, while our last measurement on May 29.883 UT

provides $B=10.989$, $V=9.683$, $R_c=8.822$, and $I_c=8.228$. The start of what looks

like

as a new outburst episode is marked by a significant lowering of the usually

very high ionization conditions: the HeII 4686 / Hbeta ratio has declined from

0.83 in Nov 2014 to 0.67 on May 29.86 UT, and the ratio between OVI Raman scattering at 6830, 7088 and HeI 6678, 7065 has lowered from 3.80 to 1.58. The

profiles of emission lines are still broadly similar to those of quiescence,

in

particular no P-Cyg absorption has yet appeared.

AG Dra is a yellow symbiotic binary, with an orbital period of 550 days and a

pulsation one of 355 days (Galis et al. 1999, A&A 348, 533). The high galactic

latitude, large radial velocity (-135 km/s) and low metallicity of the K giant

donor star ($[Fe/H]=-1.3$, Smith et al. 1996, A&A 315, 179), point to a partnership of AG Dra with the Galactic Halo. The luminous super-soft X-ray

emission was discovered by ROSAT (Greiner et al. 1997, A&A 322, 576). AG Dra

went through 3 major outburst periods during the last 50 years, in 1980-82,

1994-96 and 2006-08, each showing multiple maxima. These maxima have either

been

of the "cool" (probably related to an expansion and cooling of the white dwarf

photosphere, with decline/disappearance of high ionization features) and of the "hot" type (probably caused by an enhancement in the wind from the white dwarf, with no reduction in the ionization degree; Gonzalez-Riestra et al. 1999, A&A 347, 478; Skopal et al. 2009, A&A 507, 1531; Shore et al. 2010, A&A 510, A70). During previous outbursts, the X-ray and the optical/UV brightness have been anti-correlated.