

AM CVn stars are ultracompact binaries ($P_{orb} < 65$ min) where a hydrogen-deficient low-mass, degenerate donor star overfills its Roche lobe and transfers matter to a companion white dwarf via an accretion disc. SDSS J0926+36 is currently the only eclipsing AM CVn star and also the shortest period eclipsing binary known. Its light curve displays deep (~ 2 mag) eclipses every 28.3 min, which last for ~ 2 min, as well as ~ 2 mag amplitude outbursts every $\sim 100 - 200$ d. Superhumps were seen in its quiescent light curve in some occasions, probably as a reminiscence of a (in some cases undetected) previous outburst. Its eclipsing nature allows a unique opportunity to disentangle the emission from several different light sources, and to map the surface brightness distribution of its hydrogen-deficient accretion disc with the aid of maximum entropy eclipse mapping techniques. Here we report the eclipse mapping analysis of optical light curves of SDSS J0926+36, collected with the 2.4 m Liverpool Robotic Telescope, covering 20 orbits of the binary over 5 nights of observations between 2012 February and March. The object was in quiescence at all runs. Our data show no evidence of superhumps nor of orbital modulation due to anisotropic emission from a bright spot at disc rim. Accordingly, the average out-of-eclipse flux level is consistent with that of the superhump-subtracted previous light curves. We combined all runs to obtain an orbital light curve of improved S/N. The corresponding eclipse map shows a compact source at disc centre ($T_b \simeq 17000$ K), a faint, cool accretion disc (~ 4000 K) plus enhanced emission along the gas stream (~ 6000 K) beyond the impact point at the outer disc rim, suggesting the occurrence of gas stream overflow at that epoch.

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common hallmark among many Be stars, and this effect is thought to be due to the presence of a circumstellar environment. Also, the star is orbiting a X-ray source as has been detected by the XMM-Newton Science Operation Center. In this study, we present the observations of ALS 2883 made at the OPD/LNA 1.60 m telescope with the Coudé spectrograph in the range 4000 to 5000 Å and S/N $\simeq 200$, performed in April 2011. First-order estimations of T_{eff} and $\log g$ parameters have been performed through Johnson's UBV and JHK photometric calibrations. Projected rotation velocity $V \sin i$ has been estimated through the mean of the first zeroes of the Fourier transforms of neutral helium rotation profiles adopting linear, quadratic and square-root limb-darkening laws. The physical conditions of the circumstellar envelope were estimated through the solution of the radiative transport equation assuming local thermodynamic equilibrium within a disk-shaped circumstellar environment with a Keplerian velocity field. The radiative transport equation is solved assuming the Roche model as a boundary condition in the circumstellar environment. Iterating the computations with a downhill-simplex algorithm, this analysis leads to a best solution for an envelope with $T \simeq 9500$ K, gas density $\rho \simeq 2 \times 10^{-15} g.cm^{-3}$, internal radius $r_i \simeq 8 R_{\odot}$ and external radius $r_e \simeq 30 R_{\odot}$, rotating with $V_{rot} \simeq 140$ km.s⁻¹ and expanding with $V_{exp} \simeq 90$ km.s⁻¹.

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ALS 2883: ANALYSIS OF SPECTROSCOPIC FEATURES

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ALS 2883 (RA 13^h02^m47^s, DEC $- 63^{\circ}50'08''$, M_v 10.1) is the first known radio pulsar with an emission B-type companion system, discovered in 1992. The Be companion of ALS 2883 has all line profiles in the visible range in emission. This emission is a

TIME-DEPENDENT NONEXTENSIVITY ARISING FROM THE STELLAR ROTATION

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In nonextensive formalism (NF) the index q can be interpreted as a parameter of long-memory. When $q \rightarrow 1$ the system becomes extensive and the memory effects are negligible. We found that for solar-type stars in open clusters the index q of the distribution of $V \sin i$ decreases with the cluster age. The extensivity of the distributions ($q = 1$) is not present until about an age range of 100 – 700 Myr. A possible explanation for the anti-correlation can be the