

Here the required report:

This thesis presents original work and new results for four cataclysmic variables (CVs) that provide insights into the evolutionary paths of these interacting binary systems. The thesis analyzes photometric and spectroscopic data, including from archives and catalogs, using standard methodologies such as Doppler tomography, eclipse mapping, time series analysis, and photometric and spectroscopic data reduction. A notable aspect of the thesis is the analysis of four CVs of the "borderline" type, which exhibit properties of both low and high mass transfer rate systems. This challenges the expected evolutionary behavior predicted by theoretical models like those developed by Knigge et al. (2011), which propose that stable discs are only expected in longer period systems with orbital periods over 5 hours. Key findings include: (i) the conclusion that IX Vel belongs to the RW Sex class, with emissivity maps showing an irradiated donor and possible outflows near the L3 point; (ii) the determination of system parameters  $M_1$ ,  $q$ ,  $T_2$  and  $R_2$  for SDSS J154453.60+255348.8 and its identification as a VY Scl-type system, along with evidence for an increasing orbital period and estimates of the mass transfer rate; (iii) updated parameters for AY Psc including  $M_1$ ,  $q$ ,  $T_2$ ,  $i$  and the orbital period change rate, plus ranges for the variability of the mass transfer rate; and (iv) determination of parameters  $M_1$ ,  $T_2$ , T-outburst, T-superoutburst, and  $q$  for the period gap CV CzeV404, noting the hot secondary and similarities/differences with SU Uma stars and possible connections to SW Sex systems. In summary, this thesis has advanced our understanding of these four CVs: CzeV404 Her, AY Psi, SDSS J154453.60+255348.8 and IX Vel and deserves to be defended as requisite to obtain the PhD degree.

with best regards



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