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
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On The Coronal Activity of the RS CVn-Type Binaries

Osman DEMİRCAN and Hasan AK  
Ankara University, Faculty of Science,  
Department of Astronomy and Space Sciences,  
06100, Tandoğan, Ankara-TURKEY  
e-mail: demircan@astro1.science.ankara.edu.tr

 [Keywords](#)  
 [Authors](#)



[phys@tubitak.gov.tr](mailto:phys@tubitak.gov.tr)

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**Abstract:** We re-analysed the behaviour of coronal activity of the RS CVn-type binaries as a function of stellar and orbital parameters. Highly significant correlations were found between the x-ray luminosity  $L_x$  and the stellar radius  $R$ , the Roche lobe filling fraction  $\Gamma$ , and the Alfvén radius  $R_A$ . The correlations of  $L_x$  with the mass  $M$ , the absolute magnitude  $M_V$ , the surface gravity  $g$ , the Roche lobe filling fraction  $\Gamma$ , and the Alfvén radius  $R_A$  are likely to be due to correlations of these quantities with the stellar radius  $R$ . Surprisingly, no correlation of  $L_x$  on the color (B-V), the rotation velocity  $V_{rot}$ , and the Rossby number  $RO$  is observed. However, significant correlations were found between the mean surface x-ray flux  $F_x = L_x / (R_c^2 + R_h^2)$  with the orbital period  $P_{orb}$ , the rotation velocity  $V_{rot}$ , the Rossby number  $RO$ . The activity-radius (and radius dependent parameters:  $\Gamma$ ,  $M$ ,  $g$ ,  $M_V$ , and  $R_A$ ) correlations are mostly disappear when the mean surface flux  $F_x$  is used as the activity measure. We think the radius  $R$  (infact the surface area  $4\pi R^2$ ) in  $L_x$ - $R$  correlation represents the filling area  $S$  of the active regions on the stellar surface. The  $L_x$  thus increases with increasing surface area  $4\pi R^2$  (in fact with increasing  $S$ ). Slightly decreasing trend of the surface flux with the evolution off the main sequence (age or  $R^2$ ) can be understood in terms of the decreasing filling fraction ( $S/4\pi R^2$ ) of the active regions with age.

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