

RADIO FLARE ACTIVITY OF RS CVn STARS

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ABSTRACT

For several years, a systematic program to observe RS CVn and similar binaries has been undertaken with the 46-m telescope of the Algonquin Radio Observatory. A number of large radio outbursts at 2.8 cm wavelength has been found from HR 1099, AR Lac, SZ Psc, UX Ari, and HR 5110. In several cases, simultaneous, or nearly simultaneous, observations of these stars were made by cooperating observers at (other) radio, optical, UV, and X-ray wavelengths. It is now clearly established that the mechanism responsible for the cm-wavelength radio emission is nonthermal gyrosynchrotron radiation in a volume whose characteristic dimension is comparable with the binary star separation. More generally, a semi-quantitative model for the radio flare activity of these stars seems to be possible using greatly scaled-up analogues of solar magnetic activity.

DISCUSSION FOLLOWING FELDMAN

Bolton: Your comment regarding the problems with coordinated campaigns strikes a nerve. The trouble with radio and X-ray astronomers (or the people who schedule their observing facilities) is that they seem to consider a negative observation a waste of time. However, if optical observers are to interpret their data during flares, they must know what the system looks like in the quiescent state. Without simultaneous radio and/or X-ray observations to identify the quiescent states, they must be inferred in some way from the optical data. This procedure greatly increases the risk that our final conclusions will be determined more by the model assumed in the beginning rather than by the observations.

Feldman: Bolton is responding too strongly to my black (or gray) sense of humor regarding some of the recent coordinated campaigns. It is obvious that quiescent-state observations are necessary before any attempt can be made to interpret flaring systems.