
Magnetic activity in interacting binaries

Colin Hill*¹

¹Institut de recherche en astrophysique et planétologie (IRAP) – Université Paul Sabatier - Toulouse 3,
Observatoire Midi-Pyrénées, Centre National de la Recherche Scientifique : UMR5277 – 14 avenue
Edouard Belin, 31400 Toulouse, France

Abstract

Interacting binaries provide unique parameter regimes, both rapid rotation and tidal distortion, in which to test stellar dynamo theories and study the resulting magnetic activity. Close binaries such as cataclysmic variables (CVs) have been found to differentially rotate, and so can provide testbeds for tidal dissipation efficiency in stellar convective envelopes, with implications for both CV and planet-star evolution. Furthermore, CVs show evidence of preferential emergence of magnetic flux tubes towards the companion star, as well as large, long-lived prominences that form preferentially within the binary geometry. Moreover, RS CVn binaries also show clear magnetic interactions between the two components in the form of coronal X-ray emission. Here, we review several examples of magnetic activity in different types of close binaries.

*Speaker