

RX J1015.5+0904:

A NEW POLAR AT THE LOWER PERIOD LIMIT

V. BURWITZ¹, K. REINSCH¹, A. D. SCHWOPE²,
K. BEUERMANN^{1,3}, S. MENGEL², P. NOTNI²,
A. VAN TEESELING¹, H.-C. THOMAS⁴

1. *Universitäts-Sternwarte, Geismarlandstr. 11, D-37083
Göttingen, Germany. (burwitz@usw051.dnet.gwdg.de)*

2. *Astrophysikalisches Institut Potsdam, Germany*

3. *MPI für Extraterrestrische Physik, Garching, Germany*

4. *MPI für Astrophysik, Garching, Germany*

Abstract. We present X-ray and optical observations of the ROSAT discovered polar (AM Her binary) RX J1015.5+0904 and first results of our analysis of the X-ray and optical data. These results indicate a one-pole accretion geometry and an orbital period of $P = 79.88$ m for this $V \sim 17$ mag system.

1. Introduction

From our analysis of bright, soft, high-galactic-latitude ROSAT All-Sky Survey sources we extracted a set of AM Her candidates (Beuermann & Thomas 1993; Beuermann & Schwope 1994; Beuermann & Burwitz 1995). Follow-up optical and X-ray observations led to the discovery of 27 new polars, more than doubling the pre-ROSAT sample. Here we present a summary of our detailed analysis of our X-ray (ROSAT survey, pointed PSPC and HRI) and optical (photometric and spectroscopic) observations of the new polar RX J1015.5+0904 from our sample of ROSAT discovered AM Her binaries.

2. The ROSAT discovered polar RX J1015.5+0904

The orbital period of the $V \sim 17$ mag optical counterpart of RX J1015.5+0904 derived from all the X-ray and optical data is $P = 79.88$ m, which is close to the lower limit for periods of cataclysmic variables. Our X-ray light curves indicate a one-pole accretion geometry with an absorption dip

caused by the accretion stream crossing the line of sight (cf. Fig. 1). The optical light curve shows a double humped structure which is characteristic of cyclotron beaming. A complete analysis and more detailed discussion of our data will be presented in Burwitz et al. (1996).

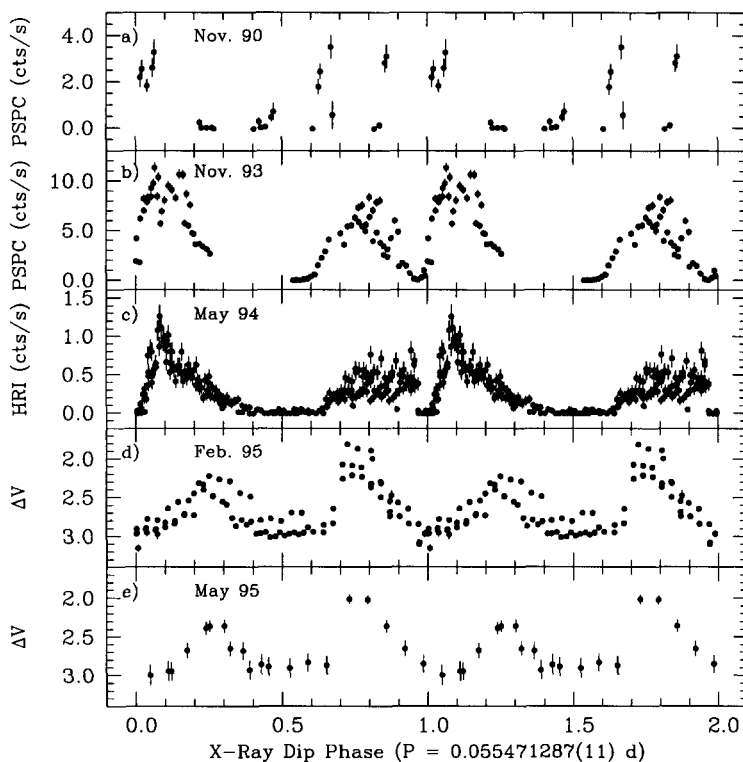


Figure 1. X-ray and optical light curves of RX J1015.5+0904. X-ray observations with ROSAT: (a) All-sky-survey (1990 November), (b) pointed PSPC observations (1993 November) and (c) pointed HRI observations (1994 May). Optical V CCD photometry obtained with: (d) the Dutch 90 cm telescope at La Silla in 1995 February, (e) the 70 cm telescope in Potsdam in 1995 May. Phase zero is defined by the center of the X-ray dip in the HRI light curve: $T(\text{dip}) = \text{HJD } 2449488.35649(26) + 0.055471287(11) \text{ E}$.

References

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