

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2669

Konkoly Observatory
Budapest
18 February 1985
HU ISSN 0374 - 0676

H α EMISSION IN RS CVn STARS: BD+61^o 1211 AND HD 37847

In addition to the 33 RS CVn stars (Liu Xuefu and Tan Huisong, 1984), other 29 RS CVn stars were observed in the H α region using the Coude Reticon system of the McDonald Observatory 2.1 m telescope. The dispersion is 9.5 $\text{\AA}/\text{mm}$ and the resolution is 0.29 \AA . These observations were made in Nov. and Dec., 1984. Two of the observed stars, BD+61^o 1211 and HD 37847, showed H α emission. The basic data are listed below.

Star	Sp.	Period (day)	Obs.J.D.(H) 2446000+	Phase	H E.W. ($\text{m}\text{\AA}$)	
					emis.	absor.
BD+61 ^o 1211	late G or early K	7.492	35.9513	0.830	2040	0
			36.0367	0.842	2030	0
			36.8954	0.956	2000	0
			36.9929	0.969	1840	0
			37.9963	0.107	2923	0
HD 37847	F(pri.) G8III(sec.)	-	33.7954	-	60	100
			34.7838	-	0	464
			35.7433	-	0	835
			36.7408	-	0	767
			36.7788	-	0	767
			37.9229	-	0	564

BD+61^o 1211=DM UMa=SAO 015339, has been identified as the optical counterpart to the x-ray source 2A1 052+606 by Liller (1978). He found by HEAO-1 that this binary has moderate H α emission. Crampton (1979) also observed the H α emission using a scanner with 8-10 \AA resolution.

We report here five high-resolution observations (Figure 1), all of them show strong emission. It is known that HR 1099, II Peg, HD 8357 and BD+61^o 1211 are the objects to emit both hard and soft x-rays and always show H α emission. This is characteristic of only the most active RS CVn stars.

HD 37847 has no H α emission reported yet. The H α profiles in this paper show gradual change over five nights (Figure 2). H α emission appears slightly above the continuum only during the first night. Obviously, the absorption component is filled up by the emission one since the equivalent width of the absorption component of H α is much less than that of the normal star in the same spectral type and luminosity class.

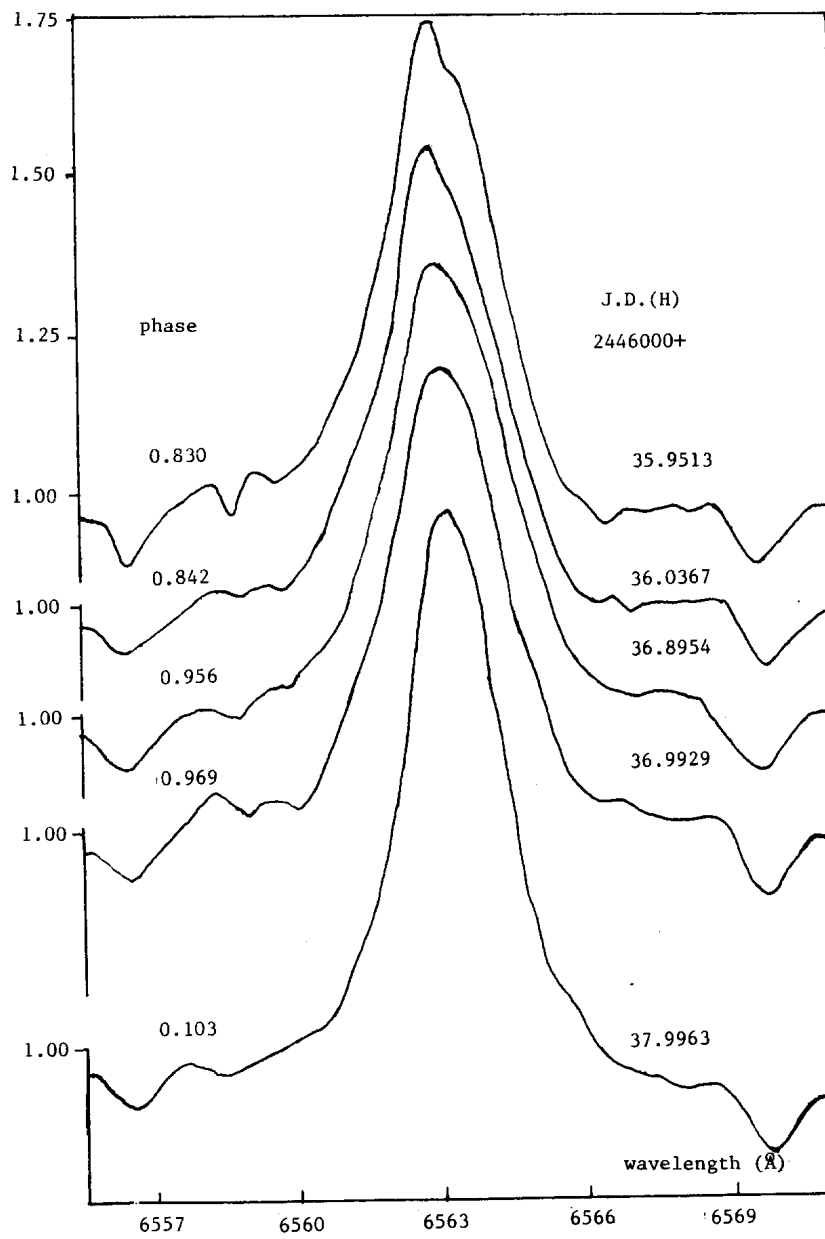


Figure 1. H α emission feature of BD+61°1211

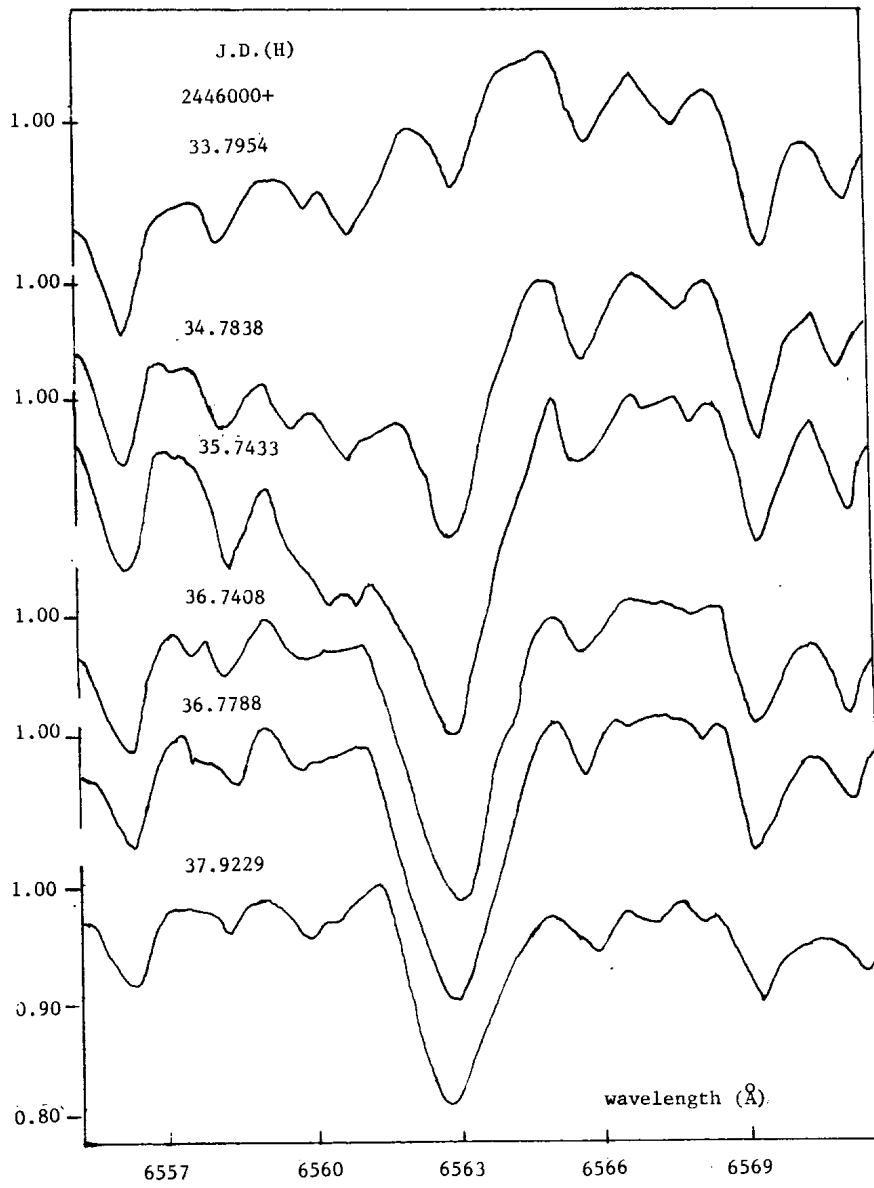


Figure 2. H α emission feature of HD 37847

We are grateful to Dr.H. Smith for scheduling the telescope time.

TAN HUISONG and LIU XUEFU
McDonald Observatory, The
University of Texas
(visiting scholars from China)

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