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THE OPTICAL BEHAVIOUR OF THE X-RAY SOURCE GX 304-1  
DURING 1985 - 1988 \*

GX 304-1 (4U 1258-61) is known to be a pulsating X-ray source with a period of 272 s (McClintock et al., 1977). The optical counterpart is a B main sequence star (Mason et al., 1978) showing strong double-peaked H $\alpha$  emission which systematically faded out between 1978 and 1982 leaving H $\alpha$  in absorption (Corbet et al., 1986). At the same time the system brightened in V from  $\sim 14.2$  to  $\sim 13.7$ . Periodic X-ray flaring was found by Priedhorsky and Terrell (1983) which is interpreted as reflecting the orbital revolution of 132.5 d. There exist also off-states (Pietsch et al., 1986) where the X-ray flux is appreciably lower than in quiescence. In the following some spectroscopic and photometric observations are reported which might be useful for those interested in the long time behaviour of this system.

The spectroscopy was performed in 1985-1988 using the Boller & Chivens spectrograph attached to the ESO 1.5 resp. 3.6 m telescope with the IDS or a CCD as detector. Table 1 gives the journal of observations. The spectra (Fig. 1) show no emission in H $\alpha$  thus indicating that the optical companion was still in its inactive state.

UBVRI photometry was obtained in Feb. 1985 using the ESO 50 cm telescope equipped with the single-channel photometer. The results listed in Table 2 are in the same range as reported by Corbet et al. (1986) for the year 1983. Continuous photometry in

\* based on observations collected at the European Southern Observatory, La Silla/Chile

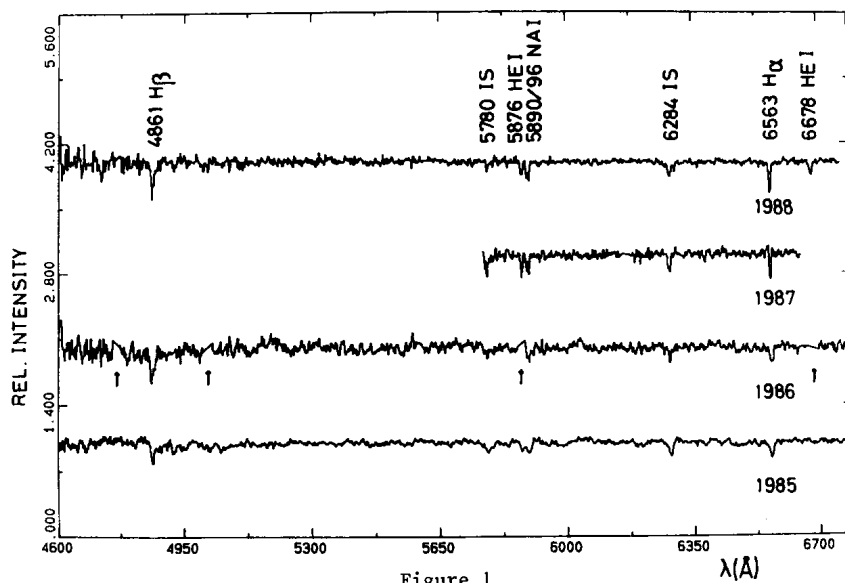


Figure 1

Spectra of GX 304-1. The spectrum of 1986 is of minor quality, arrows indicate pixel errors. The two spectra of 1985 are averaged. Most prominent features are identified.

Table I. Spectroscopy of GX 304-1

Date	Tel.	Detec.	Disp.(A/mm)	Exp. (min)
1985 Feb. 26	1.5m	IDS	114	56
1985 Feb. 27	1.5m	IDS	114	68
1986 March 13	1.5m	IDS	114	40
1987 July 30	3.6m	CCD	59.5	2
1988 June 19	1.5m	CCD	172	20

Table II. Photometry of GX 304-1

Date	V	B-V	U-B	V-R	V-I	n
1985 Feb. 24	13.67±0.03	1.83±0.09	0.66±0.40	1.10±0.03	2.33±0.02	12
1985 Feb. 25	13.71±0.02	1.81±0.06	0.88±0.34	1.11±0.03	2.34±0.02	11

integral light (duration 3 h, time resolution 4 s) was additionally performed in 1985 March 2 and the data was searched for short periodic variations. No significant signal near the X-ray period of 272 s could be found.

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