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ON MAGNETIC FIELD OF Be STARS EM Cep AND LQ And

Some Be stars have a low-amplitude (not larger than 0.1^m) photometric variability with periods within an interval of 0.5^d - 2^d and a characteristic brightness curve which has two minima and maxima. EM Cep (BI IVe, $P = 0.806187^d$ (Breinhorst and Karimie, 1980)) and LQ And (B3-4, IV-Ve, $P = 0.061904^d$ (Harmanec et al., 1991)) are the most typical representatives of this group of objects.

Harmanec (1984) has suggested that these stars have the same nature of variability as σ Ori E, a known Be star with a magnetic field (Landstreet and Borra, 1978), whose variability coincides with the photometric period 1.19080^d . In May 1990 we obtained some estimates for the magnetic field of these stars in order to check this hypothesis.

Observations of EM Cep and LQ And were carried out at the primary focus of the 6-m telescope with a hydrogen magnetometer (Shtol' 1991). The measurements were made simultaneously in the wings of hydrogen lines H_γ and H_β with a mask width of 10 Å (5 Å from the line core). The hydrogen line profiles of these stars were investigated in a preliminary way from the high-dispersion spectrograms obtained on the same telescope. This allowed to select the width and location of the mask so that to exclude the contribution from the envelope component to the measurement of circular polarization as much as possible. So, in the case of EM Cep there is no envelope contribution and it is not significant in the region of H_β line in the case of LQ And. Altogether we obtained 5 polarization estimates for EM Cep and 1 estimate for LQ And during 3 nights.

The results are presented in Table below:

JD	Δt (day)	Be(Gs)	$\pm \sigma$
2440000. +			EM Cep
8026.4800	0.0779	-429	297
8027.4376	0.0577	+96	342
8027.4944	0.0536	-122	352
8028.3995	0.0655	-435	354
8028.4493	0.0309	+261	501
			LQ And
8026.4991	0.0576	+491	266

These results show that EM Cep probably has neither a magnetic field exceeding the observation error nor a variability with the photometric period of 0.806187^d .

The only estimate of the magnetic field of LQ And does not allow to draw any conclusion on the presence of a magnetic field. A comparison of our data with the magnetic field strength for this star obtained earlier by Harmanec et al. (1991) points that it is either absent or small.

Thus, our observations of EM Cep and LQ And cast doubt on similar nature of variability of these stars and the magnetic Be star σ Ori E.

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