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NO CHROMOSPHERIC ACTIVITY SEEN IN THE VERY ECCENTRIC DOUBLE-LINED BINARY Gliese 586A

Two recent orbit determinations found Gliese 586A (= HD 137763, K1V + M0V, P = 890 days, V = 6.8 mag) to be a double-lined spectroscopic binary with an orbital eccentricity of 0.975 (Tokovinin 1991, Duquennoy et al. 1992). This is the highest eccentricity yet found among spectroscopic binaries. Due to the relatively long orbital period of 890 days the system still remains well detached at periastron passage but the two stars pass each other at a distance of only 10 $R_\odot$ (Duquennoy et al. 1992). As was also noted by the latter authors, the distance at periastron would be equivalent to that of a circular orbit with a period of 3.5 days. Late-type stars in a binary system with such a short period could be suspected to show chromospheric emission from either of the two components due to magnetic activity. We might even have the rare possibility to explore the switching on (and off) of a stellar dynamo when the two components are closest assuming that some sort of differential rotation couples the dynamo action to tidal forces. Glebocki & Stawikowski (1977, 1988) found some relation between chromospheric emissions and orbital parameters for late-type giants and suggested that tidal forces are somehow responsible for the enhanced chromospheric activity. Schrijver & Zwaan (1991) argued that in a synchronized close binary the axis for rotational effects is through the center of gravity of the binary system and thereby affects the stellar dynamo in such a way to produce enhanced magnetic activity.

Consequently we obtained a single high-resolution spectrum of the Ca II H and K lines of Gliese 586A to search for possible chromospheric emission lines. We used the 0.9-m coudé feed telescope at Kitt Peak National Observatory equipped with camera 5 and grating A and a 800-pixel TI CCD to obtain an effective wavelength resolution of 0.15 Å. *No* significant Ca II H and K emission is obvious from this spectrum (Fig. 1) which was taken at orbital phase 0.844 (HJD 2448718.417). However, we note that the periastron passage (phase 0.000) occurs within two days and was not covered by our observation. We emphasize the importance of further high-resolution monitoring of Gliese 586A especially around periastron passage (the next periastron passage will take place at HJD 2449746.782 = UT 1995 January 28 according to the elements of Duquennoy et al.).

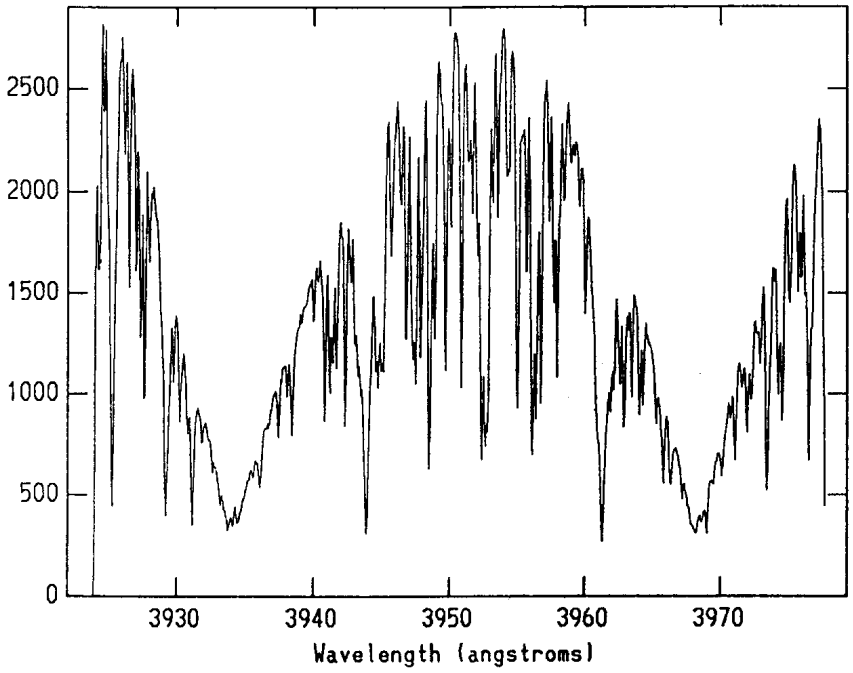

Fig. 1: A high-resolution spectrum of Gliese 586A centered at Ca II H and K. No significant chromospheric emission is detected.

K. G. STRASSMEIER
Institut für Astronomie
Universität Wien
Türkenschanzstraße 17
A-1180 Wien
AUSTRIA
(STRASSMEIER@AVIA.UNA.AC.AT)

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