

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

Number 1988

Konkoly Observatory
Budapest
1981 July 7

HU ISSN 0374-0676

THE ORBITAL PERIOD OF THE OLD-NOVA GK Per (1901)

Forty image-tube spectra of GK Per have been obtained with the Echelle spectrograph attached at the Cassegrain focus of the 182 cm reflector of the Observatory of Asiago. The spectra cover the range $\lambda\lambda 6100-7100$ A with a mean dispersion of 16.1 A/mm. The main observed feature is the H α emission, which shows a broad and variable line profile. Radial velocity measurements of H α have been derived from a mean of settings on the outer edges of the emission.

The standard error for each determination is of the order of 20 km/s.

Using the minimum χ^2 method, our data fit an orbit having the following elements:

$$\begin{array}{ll} P = 1.9020 (+0.000043) & \omega = 91 (+6)^\circ \\ a \sin i = 2.22 (+0.03) \times 10^7 \text{ km} & \gamma = +97 (+8) \text{ km/s} \\ e = 0.44 (+0.25) & \tau = 2444249.78 (+0.002) \text{ JD} \end{array}$$

where errors are given at the 1σ level.

The orbital period that we have derived for GK Per is in agreement with those given by Kraft (1964) and Bianchini, Hamzaoglu and Sabbadin (1981) and rejects the solution suggested by Paczynski (1965) and assumed by most authors.

Attention must be paid to the interpretation of the observed eccentricity and velocity amplitude. As pointed out by Smak (1970), the hot-spot can cause a distortion of the emission profile which

produces spurious amplitudes and eccentricities.

A. BIANCHINI

F. SABBADIN

E. HAMZAOGU

Asiago Astrophysical Observatory
36012 Asiago (VI), Italy

References:

- Bianchini, A., Hamzaoglu, E. and Sabbadin, F. 1981, *Astron. Astrophys.* in press
Kraft, R.P. 1964, *Astrophys. J.* 139, 457
Paczynski, B. 1965, *Acta Astron.* 15, 197
Smak, J. 1970, *Acta Astron.* 20, 311