

DETERMINATION OF THE ORBITAL PERIODS OF CP PUPPIS
AND T PYXIDIS

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ABSTRACT. We present preliminary results of spectroscopic observations with the 2.5-m DuPont telescope at the Las Campanas Observatory, Chile, in February 16-22, 1986. We used the 2D-Frutti Spectrograph (Schechter *et al.* 1985, *Annual Report of the Director of the Mount Wilson and Las Campanas Observatories*, Carnegie Institution, p. 52) and obtained 131 spectrograms of the classical nova CP Pup (1942) and 101 spectrograms of the recurrent nova T Pyx in the spectral range 3600-7200 Å with a resolution of approximately 3 Å. An analysis of radial velocities from the strongest emission lines (Balmer series, He II 4686) confirms, for CP Pup, the orbital period $P = 0^d.0614215$ derived by Duerbeck *et al.* (1987, *M.N.R.A.S.*, 229, 653). Our radial velocity amplitude of the primary $K_1 = 84.6 \pm 6.3 \text{ km s}^{-1}$ is consistent with an orbital inclination $i \approx 60^\circ$ and masses $m_1 = 0.6 M_\odot$ and $m_2 = 0.15 M_\odot$ for the stellar components. We will combine our spectroscopy with simultaneous photoelectric photometry made in cooperation with the Munich Group (H. Barwig, K.-H. Mantel) in order to investigate the nature of the periodic variations. CP Pup seems to be the first classical nova with an orbital period below the period gap ($2 - 3^h$). For T Pyx, we derive, for the first time, the orbital period of $0^d.1433$ which is nearly twice the period of the infrared variability ($\sim 100 \text{ min}$) observed by Szkody and Feinswog (1988, *Ap. J.*, 334, 422). If this is taken to be the ellipsoidal variation of the secondary star the orbital inclination must be rather high. In this case, our relatively small radial velocity amplitude $K_1 = 29.1 \pm 4.9 \text{ km s}^{-1}$ implies that the secondary of T Pyx is slightly evolved rather than a typical main sequence star.

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