

π PsA - WHO ARE YOU ?

Axel Thomas
 Geographisches Institut
 Johannes Gutenberg Universität
 D-6500 Mainz
 Germany

Received: May 28, 1991

Abstract

Visual estimates are presented that show π PsA to have a semiregular light curve with an average amplitude of 0.7 magnitude and a period of approximately 8.625 days. These results are in contrast to the available literature, that either calls π PsA a small-amplitude Cepheid or states that the star was not variable in 1964 and 1970. Spectra and absolute magnitude indicate that the star lies outside the instability strip.

During a research trip to southwestern China I selected a couple of southern stars not visible from my hometown in Germany for my private observation program. Chinese city skies proved to be much more light-polluted than anticipated so I added some bright variable stars such as π PsA.

Variability of π PsA was announced by Strohmeier *et al.* (1965), who list the star as a 5th magnitude Cepheid with a period of 7.975 days and an amplitude of 0.3 magnitude. This does not qualify the star as an easy target for visual observation but after the first nights I had detected a much larger amplitude. The real surprise came at home when the reduction of 34 observations with the elements of Strohmeier did not produce anything like the light curve of a Cepheid. Plotting the observations against time I found a semiregular light curve of amplitude approximately 0.7 magnitude and, if the gap in the observations around JD 2447485 is interpreted as 2 cycles, a period of 8.625 days (Figure 1).

A search through the available literature provided further evidence for unusual behavior of π PsA in the past: in 1964 and 1970 the star appeared constant at magnitude 5.10 (Petit 1972b), while a spectral type of F0 and an absolute magnitude of +3.6 V (Petit 1972a) point to a position outside the instability strip.

An explanation may lie in the binary or triple nature of π PsA (Hoffleit 1982), which might produce a beat phenomenon which enhances or suppresses the amplitude, depending on the time of observation.

As visual observations of small-amplitude stars are notoriously unreliable, I would like to invite photoelectric observers to monitor this unusual object to obtain reliable data on its behavior. This project would be a worthwhile one especially for observers with small instruments.

References

- Hoffleit, D. 1982, *The Bright Star Catalogue*, Yale University Observatory, New Haven.
 Petit, M. 1972a, *Inform. Bull. Var. Stars*, No. 680.
 Petit, M. 1972b, *Inform. Bull. Var. Stars*, No. 695.
 Strohmeier, W., Knigge, R., and Ott, H. 1965, *Inform. Bull. Var. Stars*, No. 86.

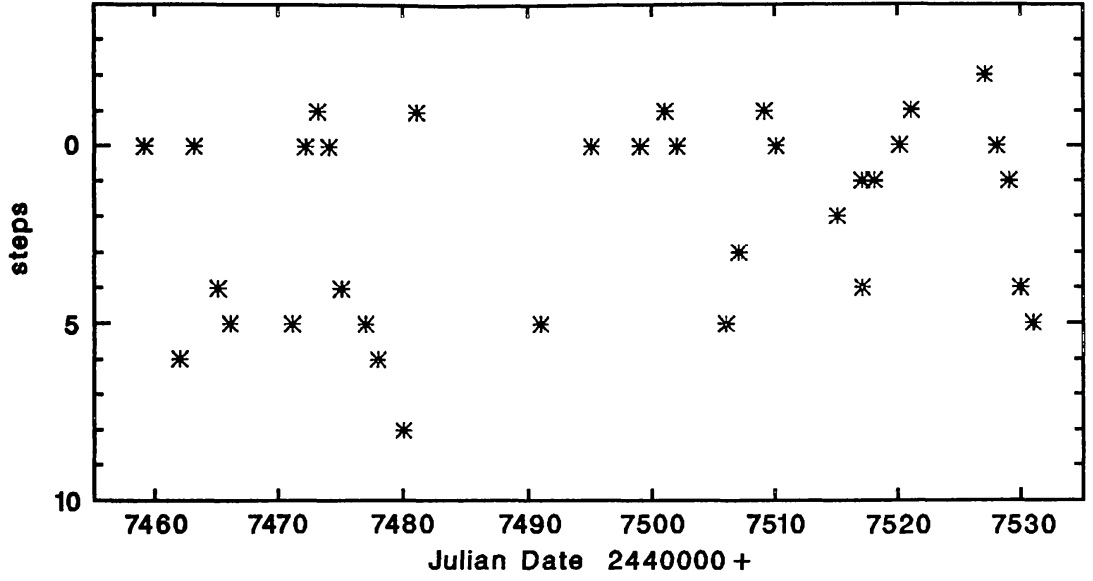


Figure 1. The light curve of π PsA from JD 24475455 through 24475532. Points indicate visual estimates by the author (Argelander steps). The comparison stars are SAO 214615 (β Scl); SAO 191550; and SAO 191581.