Strömgren Photoelectric Photometry of the Dwarf Cepheid Stars DY Peg and BP Peg

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Abstract

A study of short period high amplitude Dwarf Cepheid stars has been undertaken in order to discriminate between the two possible models, namely Bessel's (1969) proposal of low mass Pop. II or old Pop. I. The telecsope utilized was the 1.5 m at the SPM Observatory. The Danish spectrophotometer that allows the simultaneous acquisition of data in the *uvby* filters and almost simultaneously in the $H\beta$ narrow and wide filters was attached. With this advantage of simultaneous observations, no phasing adjustment was needed, eliminating the risks of losing information due to amplitude varition explained either by multiple periodicity or by the Blazhko effect. We have restricted our discussion to the descending branch and light minimum phase interval between 0.175 to 0.725. For this interval the unreddened indices $(b-y)_0$ and $(c1)_0$ were calculated as in Nissen (1988), which will serve to determine the effective gravity and temperature variation of both stars, through the model atmsphere calibrations by Breger (1974), based on the ATLAS and Kurucz model atmospheres. Mean $\log g$ values of 4.0 and 4.33, and mean temperatures of 7500 and 7700 K were determined for DY Her and BP Peg, respectively. It can be concluded that both pulsating stars DY Her and BP Peg are Pop.I, normal Dwarf Cepheid stars.

References:

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