

## Pulsating Stars and Other Variables in h and $\chi$ Persei

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**Abstract.** We present the current status of the ongoing search for B-type pulsators in the double cluster h and  $\chi$  Persei.

The central regions of the northern clusters h &  $\chi$  Persei (NGC 869 and NGC 884) have been under investigation for nearly five years. *UBVI* observations were carried out at Mt. Suhora and Białków observatories in Poland with telescopes equipped with the same type of CCD detector. About 20 variables have been found so far, including four  $\beta$  Cephei, one SPB, several Be, and some eclipsing and irregular variables. The SPB star is Oo 893 (for the identification see Oosterhoff 1937), which shows only one period above the detection level. All  $\beta$  Cephei stars have *UBVI* amplitudes below 10 mmag. One of them, Oo 2299, has an unusually long pulsation period of 0.31788 d. The star is also one of the most luminous in its class (see Krzesiński & Pigulski 1997; Krzesiński, Pigulski, & Kołaczkowski 1999). In addition, we have made the new colour-magnitude diagrams of both clusters. There is an indication of small ( $\sim 0.1$  mag) reddening range in both clusters.

Spectroscopic observations made at Haute Provence for the two brightest  $\beta$  Cephei-type members indicate large rotational velocities and radial-velocity amplitudes below 5 km s<sup>-1</sup>. With these observations we will probably be able to make mode identification of the observed modes.

Since we successfully identified  $\beta$  Cephei and SPB stars in the central regions of both clusters under investigation, we extended our survey to the fields surrounding the cluster cores using a new, wider-field (12'  $\times$  12') CCD camera at Mt. Suhora Observatory. From the observations obtained this year, we have found two  $\beta$  Cephei candidates in the fields adjacent to the cluster cores: Oo 803 in h Persei and Oo 2809 in  $\chi$  Persei.

### References

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