

Optical Variability of the λ Eri Star HD 105382: Pulsation or Rotation?¹

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Abstract. HD 105382 is clearly a monophasic, very active λ Eri star with the frequency 0.7721 d^{-1} . Its photometric behaviour and the moment variations are not typical for a standard pulsational model.

We have taken a high-resolution $H\alpha$ spectrum in May 1996, which shows double-peaked emission with a maximum of 7.5 continuum units. We conclude that HD 105382 is a very active λ Eri star, despite previous suggestions of its non-Be nature.

Measurements of HD 105382 in the Geneva seven-colour photometric system were obtained in 1997. Besides these, we have at our disposal 105 high-resolution spectra obtained with the CAT/CES during 10 separate weeks of monitoring spread over 1996-1998. Both sets of data reveal a monophasic star with the frequency 0.7721 d^{-1} .

We confronted the observations with a nonradial pulsation model by comparing the observed amplitudes for the seven Geneva filters with the theoretically predicted amplitudes (Heynderickx, Waelkens, & Smeyers 1994). We also compared the first three velocity moments with theoretical predictions (Aerts, De Pauw, & Waelkens 1992). From these two analyses we make the preliminary conclusion that HD 105382 is not pulsating according to the standard theory.

In the near future we plan to make a mode identification from the spectra. At the same time we will consider a rotational modulation model. This will enable us to determine what kind of model best corresponds to the observations.

References

- Aerts, C., De Pauw, M., & Waelkens, C. 1992, *A&A*, 266, 294
Heynderickx, D., Waelkens, C., & Smeyers, P. 1994, *A&AS*, 105, 447

¹Based on observations obtained with the Swiss photometric telescope and ESO's CAT/CES telescope, both situated at La Silla, Chile.