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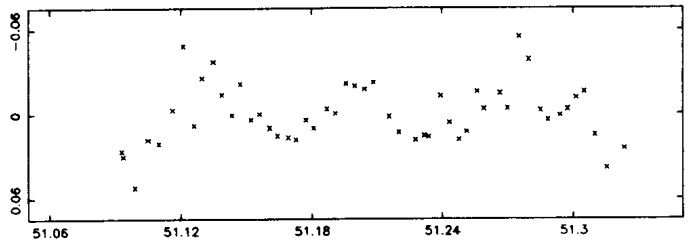
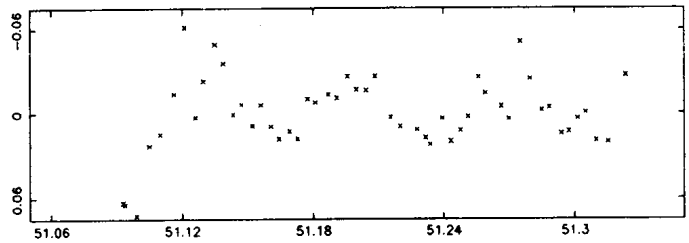
HD 127759: A NEW DELTA SCUTI VARIABLE

Photometric photometry of HR 5437 (SAO 016411), HD 127759 (SAO 016405), HD 127411 (SAO 016394) and HD 127822 (SAO 016408) was obtained between 1991 March 22 and April 8. The spectral types of these stars are in the range of A0 to F5. The 60 cm reflector at Xinglong Station of Beijing Astronomical Observatory China together with a photometer in DC mode (Shi et al., 1987) was used. Observations were made through a standard Johnson V filter.

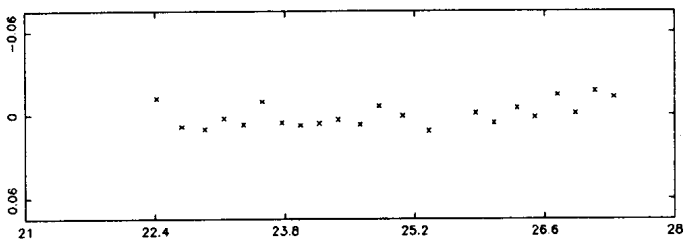
On the night of 1991 April 4, we observed HR 5437, HD 127759, HD 127411 and HD 127822 for six hours. The differential analysis shows that the light curves of HD 127759 relative to both HD 127822 and HD 127411 tend to show the same variation. The period of variation is about $1^{h}.6$ with an amplitude of $0^{m}.06$, these features can be seen from Figures 1 and 2. The light curve



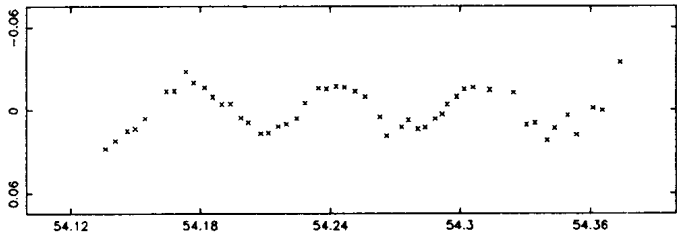
Epoch (HJD 2448300. +)
Fig. 1 The light curve of HD 127759 relative to HD 127822 (April 4)



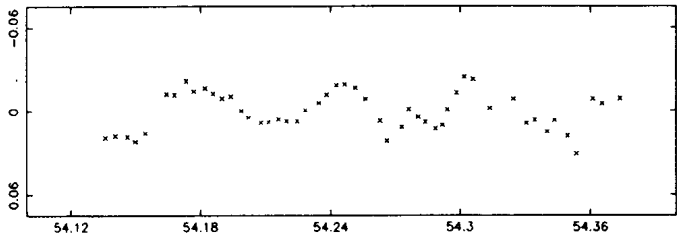
Epoch (HJD 2448300. +)
Fig. 2 The light curve of HD 127759 relative to HD 127411 (April 4)



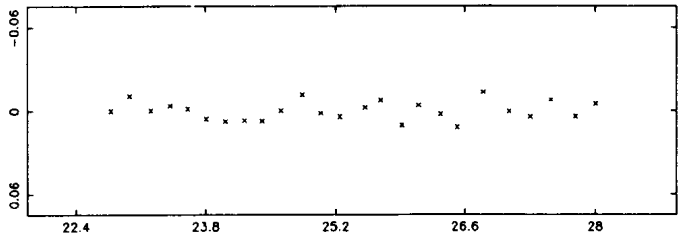
Epoch (The Beijing Times)
Fig. 3 The differential curve of HD 127411 − HD 127822 (April 4)



Epoch (HJD 2448300. +)
Fig. 4 The light curve of HD 127759 relative to HD 127822 (April 7)



Epoch (HJD 2448300. +)
Fig. 5 The light curve of HD 127759 relative to HD 127411 (April 7)



Epoch (The Beijing Times)
Fig. 6 The differential curve of HD 127411 − HD 127822 (April 7)

of HD 127759 relative to HR 5437 also supports this result. HD 127411 and HD 127822 seem to be stable within an error of $= 0^m.009$, its differential curve shows a random variation (see Figure 3).

The above results were confirmed by the observations made on the night of April 7. During six hours of observations, the differential light curves, no matter which of HD 127411 or HD 127822 was used as comparison, both show the same periodic variation which cover three cycles as presented in Figures 4 and 5. The period and amplitude are the same as that of April 4 basically. Figure 6 shows the magnitude differences between HD 127882 and HD 127411 which is constant within $0^m.015$ and gives $= 0^m.0074$ during this night. So the observations of April 4 and 7 both show the same result, and the choice of either HD 127822 or HD 127411 as comparison does not affect the basic feature of the light variation in HD 127759.

The spectral type of HD 127759 is F0, in accordance with the spectral range of delta Scuti variables. Its period and amplitude are in agreement with that of known delta Scuti variables. So we tend to classify it to be a delta Scuti type variable with a visual magnitude of $8^m.41$.

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Reference:

Shi, C.M., Du, B.T. et al.: 1987, Acta Astrophysica, 7, 230.