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HD 153747 : A DELTA SCUTI VARIABLE

HD 153747 (HD spectral type B9) was discovered to show light variations when observed by McKay at Mount John University Observatory on April 2, 1973. The star was found to show periodic variations of close to $0^m.04$ and had a period of about 70 minutes. The amplitude was found to be variable.

The star has been observed photoelectrically during 1976 in the B and V bands of the UBV system with the 60 cm telescope at Mount John University Observatory. A thermoelectrically cooled EMI 6094B photomultiplier tube was used for the observations. Extinction was determined nightly and the observations have been reduced to the UBV system. The comparison stars used were HD 153426 and HD 153767. Each observation consists of four 10 second integrations.

Observations obtained during 1976 have not shown evidence of large amplitude changes. However, observations obtained at Mount John University Observatory prior to 1976 have shown a range of amplitude variation from less than $0^m.02$ to $0^m.10$.

A section of the observations obtained on 13th June, 1976 are given. The comparison star used was HD 153426. From Fourier analysis by the method of Valtier (1972), $P=0.0496$ days and $\text{Amp.} = 0^m.016$ from the observations for the whole night of 13th June.

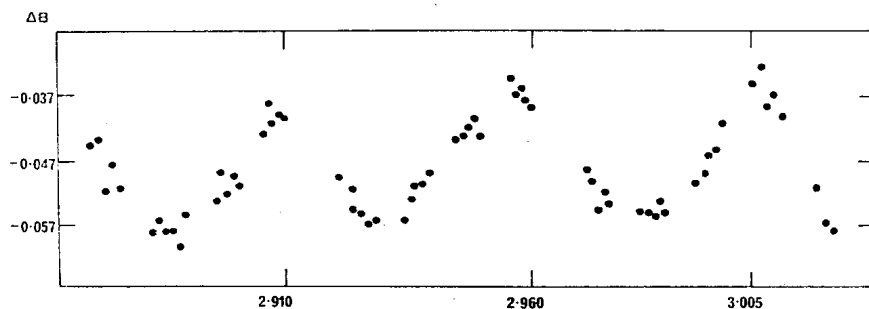
It is felt that the HD spectral type may be too early for this star. A median $(B-V) = 0^m.11$, $V=7.41$ has been obtained from observations including the E region standards. This value is uncorrected for reddening.

The period and colour of HD 153747 is suggestive of it being a hot δ Scuti star and it fits the definition of these

variables given by Baglin et al. (1973). Using the period-luminosity relationship of Dworak and Zieba (1975) for bright δ Scuti stars, an absolute visual magnitude of $+0^m.5$ was derived implying a distance modulus of $6^m.9$. Using the galactic reddening data of Fitzgerald (1968) for a star of distance 240pc and $l^{II}=347^{\circ}08'$, $b^{II}=1^{\circ}57'$ a reddening of $0^m.08$ is obtained. The unreddened median (B-V) would then be $0^m.03$ corresponding to a mean spectral type of about A1. The HD spectral type of B9 would require a B-V of about $-0^m.06$ and this classification may therefore be too early.

A spectrum obtained on 103a0 emulsion at $60\text{\AA}/\text{mm}$ at Mount John University Observatory on the 14th August, 1976, showed an early A type spectrum compatible with $(B-V) = +0^m.03$, and not of late B type.

Further analysis of the light variations is to be carried out and will be published elsewhere.



The light curve of HD 153747. Each point represents a single magnitude difference in the sense variable minus comparison.

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References:

- Baglin et al., 1973, *Astron.Astrophys.*, 23, 221
Dworak, T.Z. and Zieba, S., 1975, *IBVS*, No. 1005
Fitzgerald, M.P. 1968, *Astron.J.*, 73, 983
Valtier, J.C., 1972, *Astron.Astrophys.*, 16, 38