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ON A POSSIBLE METHOD OF IDENTIFICATION
 OF CEPHEID TYPES

The investigation of brightness-colour relation of variables of different types is carried out at the Main Astronomical Observatory of the Ukrainian Academy of Sciences.

The results of a great number of photoelectric observations of cepheids (RR Lyr, CW and C δ types) in the U,B,V system are analyzed. The basic series of observation used in the present investigation are given in 1-7.

The diagrams V versus B and U have been plotted and these dependences for all the stars under investigation proved to be linear. The values of $\Delta V/\Delta B$ and $\Delta U/\Delta B$ have been obtained. They are denoted by Δ_V and Δ_U respectively. These values were found to be different for different types of cepheids:

	Δ_V	Δ_U	
RR	0.77 \pm 0.03	0.96 \pm 0.06	Mean error of $\Delta_{V,U}$ is \pm 0.02
CW	0.71 \pm 0.03	1.13 \pm 0.05	
C δ	0.66 \pm 0.02	1.31 \pm 0.08	

The diagram Δ_V versus Δ_U have been plotted (Fig.1) where points correspond to the RR Lyrae stars, circles to the CW stars and crosses to the C δ stars. The dependence between Δ_V and Δ_U is:

$$\Delta_U = 3.39 - 3.16 \Delta_V$$

Thus the result obtained shows that type of cepheid can be identified through photoelectric U,B,V observations without determining its light curves and periods.

For instance BK Aur, TW CMa, U and X Vul have the values Δ_V and Δ_U adequate to classical cepheids and SZ Tau to CW stars (in the General Catalogue (8) the type of these stars is not identified). W Vir differs from other stars of that type. Its place on a Δ_V - Δ_U plane is far away from CW stars.

In addition the connection between Δ_U and metal content (ΔS) for RR Lyrae stars and between Δ_U and period for C δ stars have been found (Fig.2 and Fig.3).

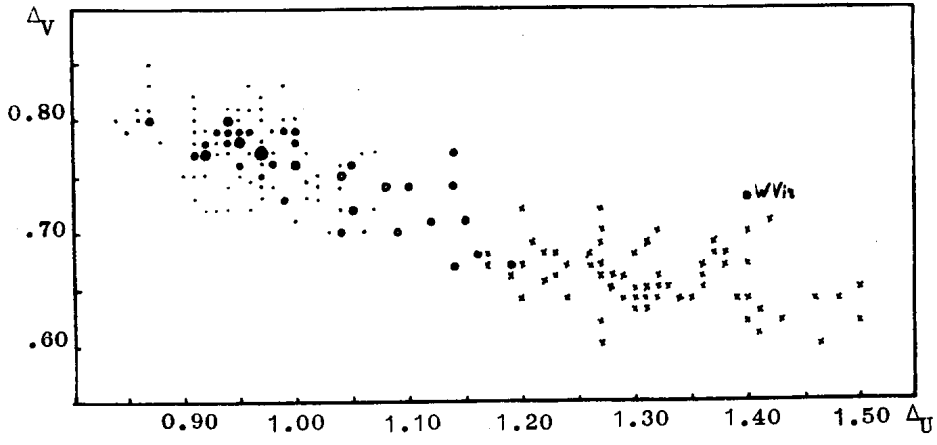


Fig.1

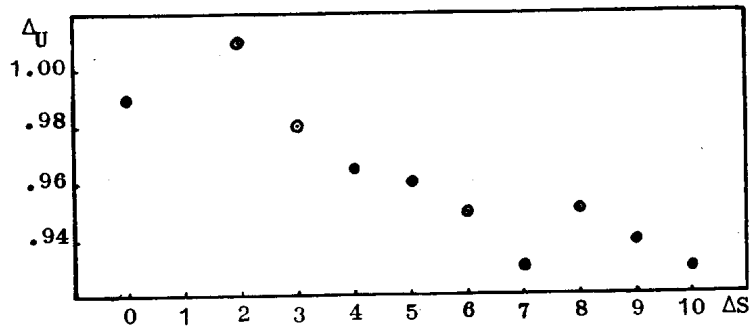


Fig.2

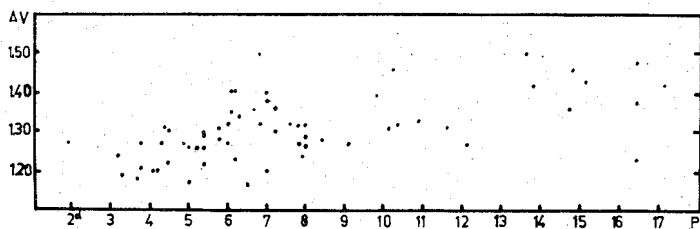


Fig.3

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