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UBV PHOTOMETRY OF GAMMA PEGASI

Gamma Pegasi (HR 39, MK standard of spectral type B2 IV, standard star of UBVR photometry, a Beta Cephei-type variable) was observed by the author on two nights in October 1965 with a photoelectric photometer mounted in the Cassegrain focus of the Lowell Observatory's 21-inch reflecting telescope. An EMI 6256 S photomultiplier tube with a set of standard UBV filters and usual D.C. equipment were used. Star 34 Piscium (HR 26, spectral type B8 V) served as only comparison star. Its magnitude and colour indices on the UBV system were determined by comparison with standard stars on six nights in October and November 1965. The results are: $V = 5^m 53.5 \pm 0^m 0013$, $B - V = -0^m 069 \pm 0^m 0015$, and $U - B = -0^m 194 \pm 0^m 0032$ (mean errors).

The V, B, and U magnitudes of the variable star are plotted against phase in Fig. 1. Phases were computed from elements of maximum radial velocity of Sandberg and McNamara (P.A.S.P. 72, 508, 1960), and then increased by 0.25. It may be seen from Fig. 1. that light ranges in V, B, and U are equal to $0^m 017 \pm 0^m 002$, $0^m 018 \pm 0^m 001$, and $0^m 027 \pm 0^m 001$, respectively. The U-B colour index of the star is smallest around maximum light, while the B-V colour index is constant within $0^m 003$. In addition to the overall variability in the spectroscopic period of $3^h 38^m$, the B magnitude of Gamma Pegasi undergoes regular fluctuations with amplitude of $0^m 005$ in a short period equal to about 44^m , i.e. one fifth of the longer period. The phenomenon is less pronounced in the V and U magnitudes, probably because of observational errors. Local maxima of the light-curves in V, B, and U are shifted relatively to one another.

The mean V magnitude of Gamma Pegasi is equal to $2^m 823 \pm 0^m 002$, and its mean B-V and U-B colour indices are equal to $-0^m 227 \pm 0^m 003$ and $-0^m 870 \pm 0^m 004$, respectively. The mean U-B colour index determined by comparing the variable star alone with standards of the UBV system (on the same nights when the differential observations were made) turned out to be $-0^m 864$.

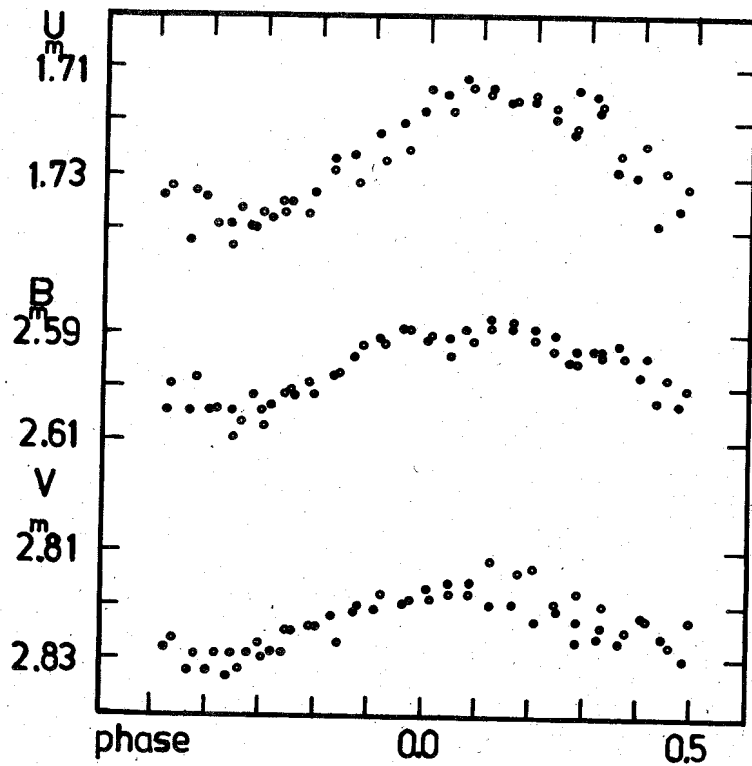


Fig. 1

The V, B, and U magnitudes of Gamma Pegasi plotted against phase. Circles denote observations taken on October 30, points those made on October 31, 1965.

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