

AY VULPECULAE

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(Not reviewed)

The star AY Vulpeculae was recognized as variable and labeled as an Algol-type system by Hoffmeister, (*A.N.* 242, 133, 1931). Koch et al. (*I.B.V.S.* 1709 1979), included it in their list of eclipsing binaries for which photoelectric work was needed. The system is faint, but because its primary minimum is very deep it is of astrophysical interest. The observations of the present investigation represent the first definitive photometric study made of AY VUL and is one of several systems with periods greater than two days being observed with the 1.0 meter Ritchey-Chretien reflector at the Flagstaff Station. A total of 1242 observations of AY Vul (406 in V, 417 in B, and 419 in U) were obtained on 12 nights in 1986.

Orbital elements for AY VUL were obtained by using the Wood model, and the calculations were performed on the VAX 11/750 computer at the Flagstaff Station of the U. S. Naval Observatory. AY Vulpeculae can be regarded as a classical Algol-type semidetached system in which the secondary component fills its Roche lobe, while the primary lies well inside its own lobe. Both eclipses are partial. The orbital elements are listed below.

ORBITAL ELEMENTS OF AY VUL USING WINK

	V	B	U
Δm	-0.769 ± 0.001	-0.845 ± 0.001	-0.724 ± 0.002
T1	7200°K*	7200°K*	7200°K*
T2	4240 \pm 30°K	4480 \pm 50°K	4290 \pm 100°K
i	85°8 \pm 0.2	86°3 \pm 0.2	85°6 \pm 0.4
r1	0.236 \pm 0.003	0.240 \pm 0.003	0.246 \pm 0.002
k	1.075 \pm 0.015	1.053 \pm 0.017	1.076 \pm 0.009
q	0.23	0.23	0.23
L1	0.917	0.948	0.976
L2	0.083	0.052	0.024
a1	0.237	0.243	0.250
b1	0.236	0.242	0.248
c1	0.235	0.240	0.246
a2	0.282	0.282	0.300
b2	0.255	0.255	0.268
c2	0.244	0.244	0.255

* adopted
 Errors listed are p.e.