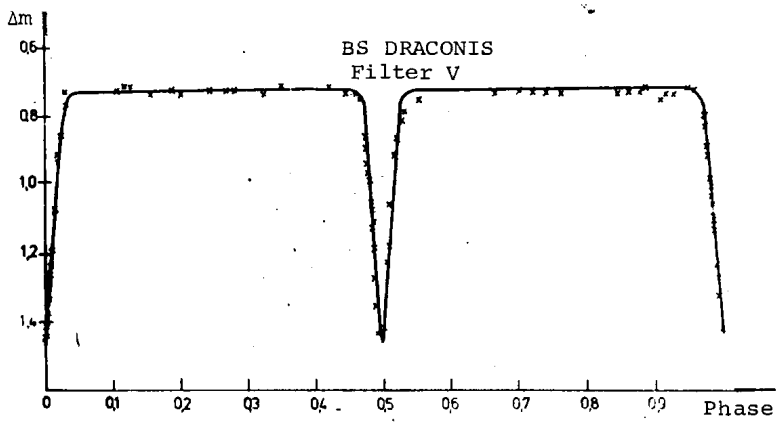
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1794

Konkoly Observatory
Budapest
1980 May 27

THE BINARY SYSTEM BS DRACONIS

The binary system BS Draconis was observed at the Cluj Observatory from March 3, 1972 to August 18, 1974. The observations in B and V have been made with a 50-cm Newton telescope equipped with unrefrigerated 1P21 photomultiplier.

The mean light curve in V obtained from 498 points is given in Fig. 1, where the observations have been represented by crosses. This curve has been used to determine the elements.



A preliminary solution (Model 1) has been obtained using a Horak-type model; for rectification the Fourier development has been derived: $\ell=0.9805+0.0065 \cos\theta - 0.0046 \cos 2\theta+0.0010 \sin\theta-0.0026 \sin 2\theta$. The results are given in Table I. The preliminary solution has been improved using a Wood model. First taking into account the equal amplitude of the two minima and the spectroscopic results it was assumed that the mass ratio q=1. The results (Model 2) are given also in Table I and are plotted in Fig. 1 (full line). Then q has been computed (Model 3), and the value

Table I

Variable parameters	Model 1	Model 2	Model 3
i^o	90.0197	89.783±0.006	90.000±0.008
r_1	0.1035	0.1099±0.002	0.1096±0.002
k	1.1111	1.0581	1.0625
$T_2(eq)^o$	6379	6443±32	6442±34
q	-	-	0.9920
Constant parameters			
$T_1(eq)^o$	6500	6500	6500
$u_1=u_2$	0.6	0.6	0.6
$\beta_1=\beta_2$	-	0.25	0.25
$w_1=w_2$	-	0.5	0.5
$n_1=n_2$	-	5	5
q	-	1	-
Auxiliary parameters			
a_1	0.1036	0.1101	0.1098
b_1	0.1035	0.1099	0.1096
c_1	0.1034	0.1098	0.1094
a_2	0.1156	0.1166	0.1167
b_2	0.1148	0.1163	0.1164
c_2	0.1146	0.1161	0.1162
$T_1(pol)^o$	-	6509	6509
$T_2(pol)^o$	-	6453	6453
$L_1(ap)$	-	0.0305	0.0303
$L_2(ap)$	-	0.0329	0.0329
$L_1(norm)$	0.4667	0.4809	0.4790
$L_2(norm)$	0.5332	0.5191	0.5210
$(O-C)^2$	0.0346	0.0219	0.0220

obtained is very close to 1, i.e. q=0.99. From the three models, model 2 seems to be the best solution, giving the smallest $(O-C)^2$. During the principal minimum there is a total eclipse, while during the secondary - an annular eclipse.

The complete solution, including the light curve in B, will be published elsewhere.

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