COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 782
Konkoly Observatory
Budapest
1973 April 17

ON THE POLARIZATION VARIABILITY OF YY Eri

The polarization feature of YY Eri was observed during 6 nights in October and November of 1971 by means of automatic electronic polarimeter (1) attached to the 16" refractor. No light filters were used. The effective wavelength of the apparatus was equal to 0.54μ. 222 measurements were obtained. The mean values of the polarization depending on the phases are given in Table 1, where the phases f listed in column one, are computed from elements of GCVS 1969. The number of observations is shown in column 2 and the mean values of the polarization parameters P and θ are given in the last two columns together with the values of their errors, found from dispersion of individual observations. Averaging was performed according to the components P_x and P_y of the polarization vector in a rectangular frame of references.

The polarization turned out to be variable. Figure 1a gives the dependence of the observed polarization degree and of the position angle and figure 1b - the dependence of the quantity of polarization light (2) $P_o = l(f) \cdot P(f)$ and of the position angle on the phase, where $l(f)$ is the light loss, computed from the light curve of YY Eri, published in (3).

Qualitatively the polarization maximum at $0^p.25$ phase may be explained by the scattering of light on gaseous stream emerging from the primary component.

14 February 1973

V.A. OSHCHEPKOV
Abastumani Astrophysical Observatory

References:

1. Xanfomaliti L.V. 1967, Devices and Technique of Experiment, N2, 167.
2. Shulov O.S. 1966, Astrofisica, 2,339.
3. Purgathofer A., Purgathofer I., 1960,Mitt.Univ.Sternwarte Wien, 10,n10, 211.

Table 1

f	n	P% ± σ_p	θ ± σ_θ	f	n	P% ± σ_p	θ ± σ_θ
0.011	9	0.73 ± 0.12	154 ± 4	0.508	1	0.34	156
0.039	9	0.56 0.12	162 5	0.539	1	0.38	167
0.063	8	0.52 0.11	156 5	0.564	3	0.36 ± 0.17	169 ± 10
0.088	8	0.80 0.10	159 3	0.587	3	0.39 0.10	174 6
0.113	8	0.63 0.11	158 4	0.612	3	0.31 0.06	170 4
0.138	10	0.48 0.09	161 4	0.638	4	0.51 0.12	165 6
0.164	10	0.58 0.07	156 3	0.665	6	0.09 0.10	163 16
0.189	5	0.62 0.14	156 5	0.688	6	0.19 0.09	157 9
0.213	6	0.71 0.06	159 2	0.713	6	0.37 0.08	164 5
0.238	8	0.74 0.05	162 2	0.737	6	0.47 0.06	168 3
0.263	8	0.70 0.07	159 3	0.763	6	0.34 0.05	168 3
0.289	7	0.74 0.07	162 2	0.787	6	0.27 0.05	165 4
0.313	6	0.61 0.09	158 3	0.817	3	0.30 0.02	177 2
0.339	8	0.65 0.04	162 2	0.839	4	0.31 0.03	179 2
0.363	6	0.66 0.04	162 2	0.863	3	0.40 0.10	159 6
0.390	5	0.73 0.07	157 2	0.889	4	0.51 0.10	168 4
0.413	6	0.52 0.10	164 5	0.913	4	0.54 0.08	167 4
0.439	7	0.42 0.07	162 4	0.938	4	0.53 0.04	166 2
0.463	4	0.38 0.12	165 7	0.966	3	0.42 0.05	164 3
0.489	2	0.62 0.09	168 4	0.988	6	0.56 0.06	166 3

Fig.1a,b.