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UBV OBSERVATIONS OF HR 1099 ON FEBRUARY 22nd, 1977

Alerted by telephone calls from D. Fraquelli (University of Toronto) and D.S. Hall (Vanderbilt University) that a radio flare was in progress, we observed HR 1099 in optical wavelengths at the first opportunity with the 41-cm telescope at the RAO. The photometer was equipped with a DCO₂-cooled, selected EMI 6256 PMT operated at - 1200V. Although the night was not of the highest quality and no night extinction and transformation coefficients were obtainable, mean coefficients appear to satisfy the observations adequately. The (Hardie) coefficients employed were: $k_y' = 0.156$, $k_{by}' = 0.098$, $k_{ub}' = 0.271$, $k_y'' = 0.00$, $k_{by}'' = -0.03$, $k_{yb}'' = 0.00$, $\epsilon = -0.026$, $\mu = 1.002$, $\psi = 1.004$. HR 1099 and its visual companion were observed together using a 30 arc-sec diaphragm.

Differential observations relative to the comparison star, 10 Tau, are given in Table I. Phases were computed using the ephemeris of Bopp et al. (1977).

TABLE I - DIFFERENTIAL OBSERVATIONS OF HR 1099

JD _o	ϕ	dV	d(B-V)	d(U-B)	ΔX	X
2443561 +						
0.6486	278.7346	1.55	0.38	0.39	-0.007	2.018
0.6621	.7394	1.59	0.33	0.43	-0.007	2.086
0.6663	.7408	1.57	0.33	0.44	-0.007	2.144
0.6757	.7442	1.57	0.35	0.42	-0.008	2.277
0.6809	.7460	1.58	0.32	0.44	-0.008	2.376
0.6897	.7491	1.53	0.36	0.42	-0.009	2.515
0.6946	.7508	1.51	0.39	0.40	-0.009	2.616

X is the air mass of the variable star and ΔX is the difference in air mass between the variable and comparison stars at the instant of the variable star observations. The mean standard errors of five comparison star observations were found to be ± 0.019 , ± 0.009 , and ± 0.010 in V, (B-V), and (U-B) respectively.

The results appear to be fainter than those reported by Bopp et al (1977) for the same phase, but a secular variation of the phase is suspected; the results are in fact consistent with Bopp et al's minimum-light data. In light of the reports that HR 1099 is an x-ray variable (Walter, Charles and Bowyer: 1978) and has been producing very high intensity ratio levels (Feldman, et al, 1978 and Feldman, 1978) observations at all wavelengths are evidently desirable.

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