

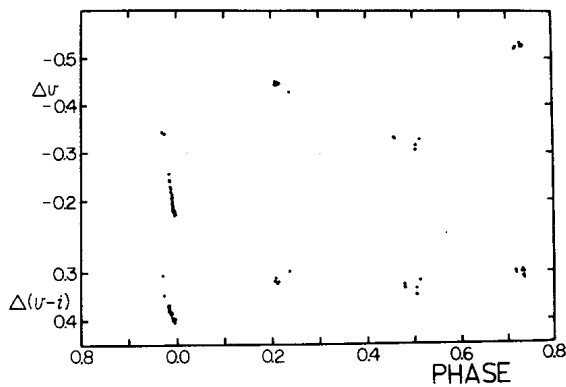
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FURTHER LIGHT CURVE VARIATIONS OF SZ PISCUM

The eclipsing variable SZ Psc (HD 219113), which is a member of the RS CVn class (Hall 1976), recently has been studied by Jakate et al. (1976). In that study photometry from two epochs was presented which indicated that the light curve is highly variable. Data obtained by Bakos in 1957 exhibited a pronounced sinusoidal wave (0.2 mag amplitude, maximum near phase 0.7) while data obtained in 1974 showed this feature to be absent. A few observations made in intermediate years indicated that the wave was present at close to the 1957 amplitude but that it was not migrating in phase. Since continuing observation will be useful in studying the variation of the wave, the brightness of SZ Psc was measured at times of opportunity on nine nights during December 1976 using the 42-inch (107 cm) telescope at Lowell Observatory. The accompanying Table gives the observations which consist of magnitude differences, SZ Psc minus HD 219018, corresponding to passbands chosen to approximate the V and I bands of the UBVRI system. The photometric system used was similar to that described by Fernie (1974), differing only in the substitution of an ITT F4085 photomultiplier. It will be noted that the comparison star is that used by Jakate et al.; the time of mid-eclipse, however, occurred about an hour later than predicted by the non-linear elements of that study. Therefore, the phases listed have been computed using the formula $JD_0 = 2442308.7671 + 3.965552E$ which Jakate et al. determined from the times of their photoelectric primary minima.

The accompanying figure illustrates the 1976.9 light variation. Although the period is almost exactly four days, the phasing was such that it was possible to obtain observations at the



quadratures and during both eclipses. The wave clearly has been reestablished with an amplitude of at least 0.075 mag. Further, the depth of secondary eclipse seems to have increased significantly while the level of mid-primary eclipse is higher than at former epochs. This suggests that the wave maximum has shifted

Table

JD ₀	Phase	Δv	Δ(v-i)	JD ₀	Phase	Δv	Δ(v-i)
2443000+				2443000+			
117.6683	0.9820	-0.258	0.369	117.7169	0.9942	-0.170	0.403
117.6750	0.9837	-0.245	0.375	117.7203	0.9951	-0.171	0.399
117.6757	0.9839	-0.243	0.373	117.7212	0.9953	-0.178	0.396
117.6766	0.9841	-0.243	0.366	118.5563	0.2059	-0.446	0.317
117.6798	0.9849	-0.237	0.378	118.5595	0.2067	-0.452	0.309
117.6807	0.9851	-0.234	0.380	119.5626	0.4597	-0.333	0.324
117.6816	0.9853	-0.232	0.378	119.5655	0.4604	-0.331	0.329
117.6845	0.9861	-0.227	0.378	119.7394	0.5043	-0.318	0.331
117.6866	0.9866	-0.222	0.382	119.7431	0.5052	-0.307	0.345
117.6876	0.9869	-0.219	0.384	121.5875	0.9703	-0.344	0.304
117.6913	0.9878	-0.211	0.385	121.5996	0.9732	-0.343	0.346
117.6923	0.9880	-0.213	0.387	122.5474	0.2124	-0.445	0.322
117.6932	0.9883	-0.214	0.382	122.5503	0.2131	-0.451	0.317
117.6965	0.9891	-0.207	0.385	122.5535	0.2139	-0.447	0.319
117.6875	0.9894	-0.208	0.385	123.7341	0.5116	-0.329	0.316
117.6985	0.9896	-0.202	0.385	124.5489	0.7171	-0.522	0.297
117.7017	0.9904	-0.201	0.387	124.5524	0.7180	-0.525	0.302
117.7025	0.9906	-0.194	0.394	126.6121	0.2374	-0.430	0.296
117.7056	0.9914	-0.192	0.392	128.5659	0.7301	-0.534	0.299
117.7065	0.9916	-0.190	0.397	128.5694	0.7309	-0.533	0.294
117.7074	0.9919	-0.190	0.399	128.5773	0.7329	-0.526	0.299
117.7106	0.9927	-0.184	0.397	128.5803	0.7337	-0.525	0.308
117.7116	0.9929	-0.184	0.393	128.5834	0.7345	-0.527	0.312
117.7126	0.9932	-0.177	0.402				
117.7158	0.9940	-0.180	0.397				

toward increasing phase. The present (v-i) color curve provides the first measurement of the color of the wave in this system. The wave is slightly bluer than the system as a whole. Since the secondary contributes significantly more light at longer wavelengths, the contrast between bright and dark hemispheres is lower in the infrared than in the visual. Finally, one notes that on the average the system has become brighter and bluer since 1974.

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