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UBVR PHOTOMETRY OF SU TAURI

The variable star SU Tauri ($\alpha = 5^{\text{h}}43^{\text{m}}12^{\text{s}}$, $\delta = +19^{\circ}02'0$, $\Delta\alpha = +3^{\text{s}}.53$, $\Delta\delta = +0'.024$; 1900) belongs to the R Cr B class of variable star. According to the General Catalogue of Variable Stars, it has a range in brightness $9.5 < V < 16.0$. The same source lists a spectral type of GO ep. The R Cr B stars as a class spend much of their time at maximum brightness. Feast (1975) gives a thorough discussion of the characteristics of the R Cr B class of variable star.

SU Tauri was entering minimum brightness during late 1976 (see American Association of Variable Star Observers Circulars). Since few such stars are observed near minimum, a short series of photoelectric observations was made at the Kitt Peak National Observatory's 2.1-meter telescope on 26 November 1976 U.T. A dry ice cooled ITT FW 129 photomultiplier was used together with standard UBVR filters. Standard stars were chosen from Landolt (1973). Standards for the R filter were from faint standards by Kunkel (1976), tied into the Johnson UBVR photometric system.

The results are presented in Table I. The heliocentric Julian Days are known to within 10 seconds. The data consists of 5 separate sets of measures. The average magnitude and color-index values together with their corresponding r.m.s. errors (of a single observation) are $V = 16.86 \pm 0.05$, $(B-V) = +1.08 \pm 0.11$, $(U-B) = +0.30 \pm 0.15$, and $(V-R) = +0.5 \pm 0.6$. The $(V-R)$ value is especially poor since the sensitivity of the FW 129 is very low near the R passband. SU Tauri appears to be at one of its faintest minima.

The spectra and colors of R Cr B stars can change significantly as the star waxes and wanes. In particular, color indices at minimum can be bluer than those at maximum brightness due to the effects of emission lines (Feast 1975). Fernie, Sherwood and DuPuy (1972) found $(B-V) \approx +1.08$ and $(U-B) \approx +0.41$ for SU Tau near maximum. As one can see, the $(B-V)$ color index is unchanged, but the $(U-B)$ color index at this minimum is slightly bluer.

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Table I
UBVR Photometry of SU Tauri

JD ₀	V	B-V	U-B	V-R
2443000.0+				
108.9893	16.82	+1.16	+0.13	+0.4
.9914	16.89	0.95	0.49	-0.4
.9943	16.82	1.20	0.37	+0.4
.9965	16.83	1.09	0.18	+1.0
.9987	16.92	1.00	0.33	+1.0

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