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Astronomisches Institut der Universität Erlangen-Nürnberg
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LIGHT CHANGES OF T TAURI STARS IN THE CHAMAELEON ASSOCIATION

During a stay at the Boyden Observatory a star field around ϵ Cha, which included Hoffmeister's T Association, was photographed as often as possible. The instrument used was the 10" Metcalf refractor of the Boyden Observatory, the exposures were taken on Gevaert 67A50 plates. A total of 102 plates on 31 nights could be obtained. All stars classified as T Tau stars which were not too faint were included, the photographic magnitude of all stars was obtained by the Argelander method. On three of the best plates the numerous comparison stars needed were measured, together with standard sequence stars of the selected area SA 203, with the Iris Photometer of the Remeis Observatory, Bamberg. The period of $3^{\text{d}}.2$ is clearly found for T Cha. For SY Cha the times of maximum and minimum light are well represented with a period of $6^{\text{d}}.2$; somewhat less pronounced is a period of 7^{d} in VZ Cha. In the latter case a phase shift may have happened around J.D. 244 1398. There is also some indication of a period of 8^{d} in TW Cha, but in this case the observations are too poor. In the meantime the stars SY Cha, VZ Cha and TW Cha were observed photoelectrically in UBV at the ESO Observatory, La Silla. The preliminary reduction of the data shows clearly light and colour changes which are in full agreement with the photographically derived quasiperiodic changes. A grant of the "Deutsche Forschungsgemeinschaft", which enabled one of us (H.M.) to do the observations at Boyden, is gratefully acknowledged.

H. MAUDER
Astronomisches Institut
der Universität Tübingen

F.M. SOSNA
Dr. Remeis-Sternwarte Bamberg

J.D.	T Cha	ST Cha	SW Cha	SX Cha	SY Cha	SZ Cha	TW Cha	UV Cha	VW Cha	VZ Cha	WW Cha	WY Cha	BC Cha
244. . . .													
1299.48	-	14 ^m 37	14 ^m 06	15 ^m 74	13 ^m 30	13 ^m 49	14 ^m 52	14 ^m 69	13 ^m 58	12 ^m 57	15 ^m 19	14 ^m 96	-
1300.48	13 ^m 04	13.94	14.06	-	12.51	14.48	14.22	15.31	13.79	12.57	15.59	14.96	-
.51	12.95	13.99	14.43	15.98	12.44	14.60	14.22	14.91	13.76	12.36	15.09	15.01	-
.53	12.86	14.10	14.35	15.74	12.64	14.09	14.12	15.16	13.72	12.77	15.09	14.36	-
1306.48	13.35	13.89	14.35	15.23	13.00	13.42	13.83	14.82	13.58	14.17	15.51	14.85	-
.51	13.35	13.89	14.50	15.38	12.94	13.35	13.83	14.82	13.65	13.80	-	14.85	-
.53	13.47	14.12	14.06	15.40	12.89	13.35	14.12	14.91	13.50	13.84	15.51	14.84	-
.55	13.04	14.20	14.35	14.91	12.89	13.49	13.83	15.31	13.65	13.73	-	14.84	-
1307.42	11.50	14.17	14.35	14.35	12.64	14.01	14.02	14.91	13.76	13.80	15.51	14.96	-
.44	11.52	14.37	14.35	14.25	12.64	14.01	14.02	15.31	13.76	13.73	15.09	14.84	-
.46	11.50	14.67	14.50	14.25	12.89	14.09	13.83	14.91	13.96	13.80	15.04	14.96	-
.48	11.50	14.67	14.35	14.67	12.89	14.17	14.02	14.91	13.79	13.54	15.19	14.84	-
1308.44	11.50	13.99	14.18	15.74	13.00	13.49	14.12	14.91	13.72	13.29	14.99	14.71	-
.46	11.50	13.99	14.35	15.63	12.89	13.49	14.02	15.31	13.65	13.55	15.04	14.78	-
.48	11.52	13.89	14.35	15.50	13.00	13.49	14.12	14.91	13.72	13.54	15.27	14.99	-
1339.38	-	14.20	14.35	15.26	13.00	13.62	14.73	15.31	14.25	14.11	14.73	14.96	15 ^m 68
.40	15.19	14.59	14.50	15.19	13.00	13.63	14.93	15.47	14.25	14.23	14.56	15.06	15.89
.42	15.19	14.68	14.06	15.63	13.00	13.66	14.73	15.46	14.06	13.80	14.88	14.86	15.68
.44	15.19	14.68	14.66	14.67	13.00	13.49	14.52	15.16	14.25	13.80	14.88	14.82	-
.48	15.19	14.10	14.50	15.51	13.68	13.49	14.73	14.91	14.35	13.84	14.52	14.64	15.89
1340.38	12.86	13.89	14.50	15.74	14.39	12.93	14.22	14.91	13.96	14.97	15.04	15.04	15.49
.40	12.86	13.94	14.50	15.51	14.94	13.35	14.12	14.91	14.35	14.81	14.59	15.01	15.89
.42	13.04	13.77	14.06	15.74	14.73	13.20	14.12	14.91	13.76	14.81	14.73	15.13	15.49
.44	12.34	13.99	14.50	-	14.39	12.93	14.22	14.82	14.06	14.81	14.88	15.14	15.49
.46	12.77	13.99	14.35	-	14.39	12.93	14.02	14.68	13.79	14.89	14.61	15.12	15.68
.48	12.69	14.17	14.50	15.63	14.39	13.29	14.52	14.91	13.79	14.81	14.88	15.27	15.52
.50	12.66	14.19	14.06	15.74	14.39	13.06	14.12	14.91	13.79	14.89	14.75	15.13	15.56
.52	13.04	14.10	14.43	15.98	14.49	13.22	14.07	15.16	13.76	14.81	14.70	15.29	15.49
1351.31	13.04	13.89	14.50	16.46	13.30	13.42	14.93	15.16	13.72	13.80	15.04	15.12	-
1352.37	13.98	14.10	14.81	-	14.39	13.35	14.31	14.70	13.68	13.73	14.70	15.27	-
1353.35	13.35	14.12	14.50	15.21	14.19	12.93	14.93	14.91	14.35	14.11	15.27	15.24	15.82
.37	13.65	14.52	14.06	15.19	14.29	12.93	14.93	14.70	14.35	13.87	15.09	-	15.49
1354.36	15.26	13.99	14.35	15.03	13.86	13.00	14.52	15.31	13.83	14.29	15.04	15.27	15.05
.38	15.26	13.99	14.35	14.91	13.91	13.06	14.22	14.91	14.06	14.29	14.99	15.06	15.03
.40	15.11	13.77	14.50	14.67	14.19	12.59	14.12	15.31	14.01	14.29	15.09	15.19	15.08
1355.36	13.85	14.45	14.50	15.63	13.95	13.35	14.02	14.69	13.79	13.54	14.99	15.27	15.79
.38	13.92	14.19	14.81	15.74	13.91	13.35	13.83	14.91	13.79	13.54	15.04	15.29	15.61

J.D.

	T Cha	ST Cha	SW Cha	SX Cha	SY Cha	SZ Cha	TW Cha	UV Cha	VW Cha	VZ Cha	WW Cha	WY Cha	BC Cha
244.000	13.85	14.20	14.43	15.74	13.68	13.35	14.02	14.91	13.79	13.56	15.04	15.19	15.89
1355.40	12.71	14.10	14.35	15.86	13.00	13.06	14.12	15.31	13.76	12.99	15.04	15.27	15.96
1356.38	.41	12.86	13.89	15.98	12.94	13.06	14.22	15.31	13.76	12.78	15.89	15.32	15.68
.43	12.42	13.94	14.43	15.74	13.00	13.06	14.22	14.91	13.76	12.95	15.43	15.14	15.49
.45	12.86	14.11	14.35	16.46	13.00	12.93	-	15.42	13.72	12.95	15.51	15.12	15.19
1357.37	13.85	14.52	14.35	15.98	13.58	13.49	14.22	14.82	13.65	12.36	-	15.13	15.49
.39	13.93	14.68	14.35	16.23	13.91	13.49	14.22	14.70	13.58	12.77	15.89	15.13	15.24
.42	13.98	14.67	14.35	15.74	13.58	13.49	14.12	14.91	13.61	12.90	15.51	15.12	15.29
.44	13.98	14.19	14.43	16.23	-	13.49	-	14.91	13.58	-	-	15.23	-
1358.37	13.41	13.99	14.43	16.23	14.62	13.42	14.31	14.91	13.58	13.07	15.51	14.92	-
.39	13.41	13.77	14.43	15.98	14.62	13.67	14.22	14.91	13.65	12.99	15.59	14.68	15.75
.41	13.04	13.94	14.35	15.74	14.83	13.49	14.22	-	13.79	-	-	-	15.42
.43	12.86	13.99	14.58	15.98	14.83	13.49	14.12	15.01	13.79	12.82	15.04	14.84	15.49
1359.34	11.77	14.20	14.50	-	15.04	13.13	13.36	14.91	13.76	12.80	-	14.71	15.08
.36	11.98	14.20	14.50	16.46	14.59	13.22	13.50	15.16	14.25	12.80	15.51	14.81	15.29
.49	11.50	14.10	14.35	15.74	15.04	13.49	13.50	15.31	13.96	13.03	15.04	14.86	14.81
1360.43	13.65	14.10	14.50	16.23	14.29	13.35	13.50	14.82	13.96	13.14	14.88	14.86	14.69
.45	13.93	14.12	14.50	15.63	14.19	13.35	13.83	14.68	13.68	13.22	14.99	14.85	14.69
1361.34	14.23	14.20	14.35	15.74	13.49	13.55	14.22	14.91	14.25	13.80	14.73	14.92	14.69
1382.26	13.04	14.11	14.50	-	13.58	13.49	14.52	14.82	14.15	14.11	15.09	15.12	15.28
.28	13.47	14.19	14.35	15.74	13.49	13.55	14.52	14.68	14.25	14.17	14.56	15.11	15.23
.30	13.21	14.12	14.50	15.63	13.49	13.35	14.52	14.82	13.76	14.29	15.09	15.01	15.28
1383.25	-	14.10	14.50	15.63	14.39	13.35	14.31	14.91	14.25	13.73	15.51	15.24	15.10
.27	-	14.12	14.27	-	14.39	13.49	14.22	14.91	14.30	14.17	15.14	14.96	14.86
1391.35	-	-	-	-	13.58	13.55	14.12	-	13.71	-	-	-	-
1393.42	14.34	14.12	14.50	-	12.22	13.49	14.07	-	14.25	-	-	-	14.01
1394.26	-	-	-	-	12.30	-	-	-	-	-	-	-	-
1396.28	12.58	14.52	14.50	-	13.68	13.49	14.07	-	14.06	14.29	-	-	14.72
1397.24	13.47	14.17	14.35	-	13.58	13.29	13.50	14.69	14.35	12.86	15.04	15.29	-
.26	13.47	13.99	14.50	15.50	13.49	13.13	13.73	15.24	14.35	12.90	14.74	15.11	15.68
.28	13.30	13.99	14.43	-	13.68	12.93	14.07	14.72	14.35	12.81	15.09	15.13	-
.30	13.35	14.52	14.50	15.63	13.91	13.06	13.50	14.91	14.35	12.90	15.51	14.86	15.52
.35	13.47	14.67	14.66	-	14.19	13.06	13.73	15.16	14.25	12.90	15.09	15.01	15.68
.37	13.35	14.37	14.50	-	14.29	13.06	14.07	14.91	14.35	12.90	14.75	14.86	-
.49	13.35	-	-	-	-	13.06	14.07	-	-	12.86	-	-	-
.51	13.04	-	-	-	-	12.93	-	-	-	12.90	-	-	-
1398.32	11.53	13.89	14.06	-	12.78	13.35	14.22	14.69	14.35	12.90	14.94	14.81	-

J.D.	T Cha	ST Cha	SW Cha	SX Cha	SY Cha	SZ Cha	TW Cha	UV Cha	VW Cha	VZ Cha	WV Cha	WY Cha	BC Cha
244.....													
1398.35	11 ^m 29	13 ^m 99	14 ^m 35	15 ^m 63	12 ^m 89	13 ^m 49	14 ^m 12	15 ^m 16	14 ^m 35	12 ^m 99	14 ^m 56	14 ^m 96	15 ^m 75
.37	11.52	13.89	14.50	-	12.64	13.42	14.22	14.91	13.83	12.99	14.59	15.12	-
.39	11.52	13.94	14.12	-	12.89	13.49	14.22	15.24	14.25	12.99	14.88	15.19	-
1399.36	11.98	14.52	14.50	-	12.89	13.67	14.93	14.72	13.96	14.28	14.73	15.01	15.61
.38	12.34	14.37	14.35	15.50	12.89	13.55	14.83	14.87	14.25	13.80	14.74	15.14	15.44
.40	11.98	13.99	14.50	-	12.64	13.42	14.93	14.69	13.79	14.29	14.53	15.01	15.37
1412.29	15.11	13.99	14.66	15.50	13.58	13.42	13.50	14.27	13.79	14.29	14.80	14.99	14.35
.31	15.11	13.94	14.35	15.03	13.68	13.49	13.50	14.69	14.06	14.35	14.88	14.84	14.35
1416.23	12.18	14.10	14.50	15.26	13.68	13.35	14.93	14.69	13.50	13.56	14.99	14.94	14.24
.25	12.34	14.17	14.43	15.50	13.91	13.42	14.93	14.70	13.50	13.80	15.04	14.84	14.12
.27	12.50	14.17	14.50	15.50	13.91	13.29	15.14	14.67	13.50	14.05	14.53	15.14	14.12
.29	11.98	13.77	14.35	-	13.68	13.35	14.73	14.91	13.58	13.84	14.74	14.86	14.06
.31	11.98	13.89	14.35	15.50	13.40	13.35	14.93	14.91	13.65	13.80	14.59	14.71	14.24
.33	11.98	13.77	14.50	15.74	13.68	13.49	15.35	14.72	13.72	13.77	14.53	14.85	14.06
1419.36	14.17	14.11	14.12	-	13.30	13.49	14.02	14.69	14.35	13.77	-	14.99	14.41
1423.24	14.46	13.99	14.50	-	12.78	13.92	14.93	14.69	14.45	12.90	14.75	14.85	15.42
.26	13.85	13.99	14.50	15.63	12.64	13.66	15.14	14.67	14.45	12.78	14.69	15.01	14.81
.28	13.74	14.37	14.50	15.50	12.64	13.49	14.93	14.91	14.45	12.77	14.99	14.86	14.81
.30	14.23	14.20	14.43	15.50	12.64	13.49	14.73	14.69	14.35	12.36	14.59	14.96	15.05
.32	14.23	14.67	14.50	-	12.78	13.62	14.93	14.91	14.45	12.58	14.61	14.94	14.81
.34	13.98	14.66	14.43	15.19	12.64	13.49	14.93	14.67	14.65	12.77	14.74	14.85	15.05