THE PRESENT DATA SITUATION FOR STARS IN OPEN CLUSTERS. II.

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The present state of astrometric, spectroscopic and photometric data for stars in 63 open clusters nearer to the Sun than 750 pc is summarized. Table I reports the limits of the available data in terms of the apparent V magnitude, in the same way as the previous version (Mermilliod 1977). Information on the apparent V magnitude of the brightest main sequence star (Vbr) and on the number of stars brighter than V=10 (n*) has been included. In addition, the bluest spectral type on the main sequence has been used as an age estimator (TS).

Distances (d) and colour excesses ($EB-V$) result from new determinations by the author for one half of the clusters. Otherwise, they have been taken from the catalogues of Becker and Fenkart (1971) and Fenkart and Binggeli (1979).

Columns 6 to 8 contain the V magnitudes of the faintest member star reached in three spectroscopic domains, i.e. the spectral classification (MK) with indication of the corresponding type (latest), the projected rotational velocity ($V\sin i$) together with the intrinsic colour index of the reddest star reached ($(B-V)_0$), and the radial velocity (VR).

Details about the limits in the proper motion data are to be found under the heading (pm).

The last three columns give the V magnitudes of the faintest star measured in the UBV system, photoelectrically (UBV) and photographically (pg), in the Geneva (7-col) and Strömgren (4-col.) systems, both with an indication of the number of measured stars (no.).

James E. Hesser (ed.), Star Clusters, 129–133.

Cluster	α 1950 δ 1950	ℓII bII	*d* *EB-V*	TS	Vbr n*	MK latest	*V*sin*i* $(B-V)_0$	*VR* pm	*UBV* pg	7-col. no.	4-col. no.
UMa Cl.	14^h40 +69°47	110°.2 +44°.8	22 .00	A1	1.8 14	8.3 K3V	6.8 0.6	8.3 8.3	8.3 -	8.3 14	8.3 14
Hyades	4 17 +15	179.1 -23.9	43 .00	A2	3.5 150	12.4 M0V	7.5 0.6	9.5 18.3	15.3 18.3	12.3 170	9.2 92
Coma Ber	12 23 +26 23	221.1 +84.1	89 .00	A2	5.0 37	11.2 G9V	9.7 0.7	9.7 13.	15.6 -	11.7 65	10.6 51
Pleiades	3 44 +23 58	166.6 -23.5	130 .04	B6	2.9 75	15.3 M2.5V	10.4 0.6	9.2 16.	18.7 18.5	11.6 177	10.3 91
IC 2391	8 39 -52 53	270.4 -6.9	150 .00	B3	3.6 25	9.6 F5V	8.6 0.2	9.9 -	12.4 -	10.8 39	10.2 44
IC 2602	10 41 -64 08	289.6 -4.9	150 .04	B3	4.8 32	10.3 G2IV	7.8 0.1	- -	10.7 -	10.9 43	10.3 34
α Per	3 20 +49	147.0 -6.0	170 .08	B5	4.2 80	11.0 G1V	9.7 0.4	9.7 12.0	11.7	11.9 104	11.7 97
Praesepe	8 37 +20 10	205.5 +32.5	174 .00	A2	6.3 70	9.9 F8V	10.3 0.5	10.3 16.	13.9 -	12.6 130	10.8 99
NGC 2451	6 44 -37 51	252.4 -6.7	200 .00	B3	4.8 25	9.4 F0V	- -	- 12.	13.0 -	9.3 28	6.5 11
Zeta SC1	0 02 -30 18	14.9 -79.2	240 .00	B8	7.0 18	8.9 A3V	- -	8.9 -	10.2 -	12.5 57	12.5 48
NGC 6475	17 51 -34 48	355.9 -4.5	260 .06	B9	5.9 40	9.5 A5V	8.5 0.1	8.5 -	12.3 11.4	11.1 105	11.6 119
NGC 7092	21 30 +48 13	92.5 -2.3	305 .01	A0	6.5 23	10.1 F5V	9.1 0.1	9.1 15.	10.9 -	11.2 32	- -
IC 348	3 41 +32 08	160.4 -17.7	316 Var	B1	3.8 4	11.8 A2V	- -	- 13.4	13.0 -	12.8 11	- -
NGC 2232	6 24 -4 43	214.2 -8.1	320 .02	B2	5.0 24	9.6 A1V	9.6 0.1	- -	11.4 -	- -	- -
Cr 132b	7 12 -31 05	243.3 -9.2	330 .03	(B6)	7.5 8	- -	- -	- -	9.5 -	- -	- -
IC 4665	17 44 +5 44	30.6 +17.1	350 .18	B3	6.8 20	10.6 A5IV	10.6 0.2	10.6 14.0	11.6 13.7	11.1 28	11.4 45
Rup 98	11 55 -64 12	297.2 -2.2	350 .17	(A1)	8.9 6	- -	- -	- -	11.8 -	- -	- -
NGC 6633	18 25 +6 32	36.1 +8.3	360 .11	A2	8.4 25	9.7 A5V	- -	- 15.5	15.1 14.0	10.4 28	10.9 38

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Cluster	α 1950 δ 1950	ℓII bII	*d* *EB−V*	TS	Vbr n*	MK latest	*V* sin *i* $(B-V)_0$	*VR* pm	*UBV* pg	7-col. no.	4-col. no.
Cr 140	7^h22	245°0	378	B2	5.3	6.8	-	-	12.0	-	-
	−31°56	−8°0	.05		18	B5V	-	-	-	-	-
NGC 752	1 55	137.2	380	F2	9.2	11.7	10.1	12.5	13.9	13.9	11.7
	+37 26	−23.4	.03		10	F5V	0.4	14.9	15.5	106	37
NGC 2547	8 09	264.5	380	B3	6.5	10.5	-	-	-	11.4	-
	−49 07	−8.5	.05		26	A7V	-	11.5	-	57	-
Orion Cl	5 33	206.7	400	O9.5	2.7	13.3	10.5	11.7	15.3	11.9	12.0
	−5 25	−20.7	.06		55	K1IV	0.5	15.	18.0	73	125
NGC 2516	7 57	274.0	400	B8.5	5.6	10.8	9.4	8.6	12.3	12.2	12.4
	−60 46	−15.9	.11		62	A8	0.1	-	-	102	134
IC 4756	18 37	36.4	400	(A5)	9.5	-	-	-	11.0	-	-
	+5 26	+5.3	.19		20	-	-	14.5	14.1	-	-
NGC 3228	10 20	280.7	415	B6	7.9	10.2	-	-	14.5	-	-
	−51 28	+4.6	.00		11	A1V	-	-	-	-	-
NGC 1662	4 46	187.7	420	A1	9.0	10.7	-	-	15.1	-	-
	+10 51	−21.1	.29		8	A3V	-	-	15.4	-	-
Tr 10	8 46	262.8	440	B2	6.4	9.7	-	-	11.0	-	-
	−42 18	+0.6	.02		20	A6V	-	-	-	-	-
NGC 3532	11 04	289.6	445	A0	7.4	10.9	-	-	11.9	11.0	-
	−58 24	+1.5	.02		50	A7V	-	11.5	13.5	102	-
NGC 2422	7 43	231.0	456	B6	6.2	10.7	9.4	10.4	13.8	10.8	-
	−14 23	+3.1	.07		20	A2V	-0.1	12.0	14.2	22	-
NGC 6405	17 37	355.6	460	(B5)	6.7	-	-	-	14.5	11.4	-
	−32 11	−0.7	.15		28	-	-	-	14.7	52	-
NGC 1039	2 39	143.6	470	B9.5	8.0	9.6	9.6	9.6	12.2	12.0	-
	+42 34	−15.6	.09		22	A0V	0.0	13.8	-	43	-
NGC 2281	6 46	175.0	496	A1	8.6	-	-	-	14.9	12.9	-
	+41 07	+17.1	.07		5	-	-	12.8	13.1	58	-
NGC 6281	17 04	347.8	525	(B9)	8.3	-	-	-	13.5	10.8	-
	−37 49	+2.0	.14		12	-	-	-	-	16	-
NGC 1647	4 43	180.4	550	B9	8.6	10.7	-	-	16.1	-	-
	+18 59	−16.8	.39		10	A0IV	-	-	16.3	-	-
Pi 4	8 33	262.7	550	(B6)	7.5	-	-	-	11.9	-	-
	−44 06	−2.4	.03		4	-	-	-	-	-	-
Cr 132a	7 12	243.3	560	B2	6.3	-	-	-	10.6	-	-
	−31 05	−9.2	.02		10	-	-	-	-	-	-

https://doi.org/10.1017/S0074180900091762 Published online by Cambridge University Press

Cluster	α 1950 δ 1950	ℓII bII	d EB−V	TS	Vbr n*	MK latest	Vsini $(B-V)_o$	VR pm	UBV pg	7-col. no.	4-col. no.
Ma 6	2^h26 +60°26	134°.7 +0°.0	560 .64	(B1)	8.5 4	– –	– –	– –	– 16.3	– –	– –
NGC 6451	17 47 −30 12	359.5 −1.6	565 .09	(F)	RGU –	– –	– –	– –	– –	– –	– –
NGC 6124	16 22 −40 35	340.8 +6.0	580 .68	(B9)	8.7 13	– –	– –	– –	– 14.0	– –	– –
NGC 2527	8 03 −28 01	246.1 +1.9	590 .08	A2	9.4 5	– –	– –	– –	13.7 16.6	– –	– –
NGC 6167	16 30 −49 30	335.3 −1.3	590 .89	(B6)	9.0 9	– –	– –	– –	15.6 15.7	– –	– –
NGC 1342	3 28 +37 10	155.0 −15.4	600 .30	A1	8.7 2	10.7 A2V	– –	– –	15.0 15.1	– –	– –
NGC 6716	18 52 −19 57	15.4 +9.6	600 .13	B8	8.3 5	– –	– –	– –	13.8 13.9	– –	– –
IC 4725	18 29 −19 17	13.6 −4.5	600 Var	B5	7.9 25	10.9 A1V	– –	10.3 –	16.3 16.0	– –	11.3 10
Ba 19	13 25 −61 00	307.4 +1.3	600	(B9)	RGU –	– –	– –	– –	– –	– –	– –
Tr 2	2 34 +55 46	137.4 −3.9	615 .33	B7	8.4 10	10.8 A0V	– –	– –	15.3 15.7	– –	– –
NGC 225	0 40 +61 31	122.0 −1.1	630 .29	B8	9.3 4	10.9 A0V	– –	– –	15.4 15.9	– –	– –
NGC 5367	13 55 −39 44	316.5 +21.1	630 Var	(B4)	9.1 2	– –	– –	– –	13.3 –	– –	– –
NGC 7063	21 22 +36 17	83.1 −9.9	630 .08	B8	8.9 4	10.8 A1V	– –	– –	15.4 15.9	– –	– –
NGC 2548	8 11 −5 39	227.9 +15.3	640 .00:	(A1)	8.8 12	– –	– –	– –	11.5 –	– –	– –
NGC 3114	10 01 −59 52	283.3 −3.8	640 .10	B8	7.7 26	10.4 B9IV	– –	– –	11.7 12.0	10.2 26	– –
Cr 463	1 44 +71 42	127.4 +9.6	650 Var	(B6)	8.7 14	– –	– –	– –	12.8 –	– –	– –
NGC 2287	6 45 −20 41	231.1 −10.2	680 .01	B9	7.8 25	10.8 A2V	– –	11.1 –	14.0 14.4	10.7 45	11.8 16
NGC 6494	17 54 −19 01	9.8 +2.9	690 .38	A0	9.3 17	10.0 A5V	– –	– –	15.6 14.1	– –	– –

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Cluster	α 1950 δ 1950	ℓII bII	*d* *EB-V*	TS	Vbr n*	MK latest	*V*sin*i* $(B-V)_0$	*VR* pm	*UBV* pg	7-col. no.	4-col. no.
NGC 5662	14^h32 $-50°20$	316°.9 +3°.5	700 .32	B7	8.3 10	11.0 B9V	- -	- -	15.3 15.2	- -	- -
NGC 6134	16 24 -49 02	334.4 -0.2	700 .45	(B8)	11.1 -	- -	- -	- -	14.8 14.9	- -	- -
NGC 5460	14 04 -48 05	315.8 +12.7	720 .13	(B8)	8.0 11	- -	- -	- -	13.1 -	10.7 11	- -
NGC 5823	15 02 -55 14	321.2 +2.6	720 .27	(F?)	10.9 -	- -	- -	- -	14.2 14.0	- -	- -
Rup 108	13 29 -58 14	308.2 +4.0	730 .18	(B9)	9.3 3	- -	- -	- -	- -	- -	- -
NGC 5822	15 01 -54 09	321.7 +3.6	740 .14	(A5)	10.2 -	- -	- -	- -	13.7 13.9	- -	- -
NGC 7160	21 52 +62 22	104.0 +6.5	740 .36	B1	6.7 7	13.1 A7V	9.3 -0.2	13.1 -	14.5 14.9	12.9 24	- -
NGC 2925	9 32 -53 13	276.0 -1.2	745 .06	(B8)	8.4 3	- -	- -	- -	- -	- -	- -
Rup 46	8 00 -19 20	283.4 +5.9	750 .07	(F)	11.2 -	- -	- -	- -	14.1 -	- -	- -

Information on proper motions, MK classification and *UBV* photometry has been derived from the catalogues of Mermilliod (1976a, b) and from the third edition in preparation. Data concerning the radial velocities have been extracted from the compilation by Mermilliod (1979) and its continuation, and for the *V*sin*i* from an unpublished file by the author.

Information relative to the Geneva seven-colour (*U, B, V, B1, B2, V1, G*) and Strömgren *uvby* photometric systems has been kindly communicated respectively by F. Rufener and M. Mermilliod in advance of publication.

REFERENCES

Becker, W. and Fenkart, R.: 1971, *Astron. Astrophys. Suppl.* 4, 241.
Fenkart, R. and Binggeli, B.: 1979, *Astron. Astrophys. Suppl.* 35, 271.
Mermilliod, J.-C.: 1976a, *Astron. Astrophys. Suppl.* 25, 159.
Mermilliod, J.-C.: 1976b, *CDS Inform. Bull.* 11, 16.
Mermilliod, J.-C.: 1977, *CDS Inform. Bull.* 12, 2.
Mermilliod, J.-C.: 1979, *CDS Inform. Bull.* 16, 2.