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UBVRI photometry of G, K, M Hipparcos stars. II.

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Abstract. — *UBVRI* photometry has been obtained for 88 late-type stars of the Hipparcos Input Catalogue.

Key words: photometry — stars : late-type.

1. Introduction.

This paper is the second report on the *UBVRI* photometry of late-type stars included in the Hipparcos Input Catalogue (the first list has been published in Figueras *et al.*, 1990). As explained in Grenon (1989), these data are to be used in computing Hipparcos observing time and in assessing the observability of faint stars by the satellite.

The stars we report here, selected by M. Grenon at the Geneva Observatory, are late-type stars in the magnitude range $8 < V < 12$. Among them, there are distant red giants in the galactic plane from the Hipparcos proposal No. 189 and high proper motion stars belonging to several catalogues (G, LTT, LP, MCC).

2. Observations and results.

The observations were made at Calar Alto (Almeria, Spain) with the 1.23 m telescope of the Centro Astronómico Hispano-Alemán (C.A.H.A.) and the 1.52 m telescope of the Observatorio Astronómico Nacional (O.A.N.) and at the Observatorio del Roque de los Muchachos (O.R.M.) (La Palma, Spain), using the 1 m Jakobus Kapteyn telescope. They were performed since July 1987 to October 1989. The observing procedure and data reduction have been described in Rosselló *et al.* (1985, 1988).

Two different lists of standard stars have been used. Table 1 contains *UBVRI* photometry for 53 programme stars performed using equatorial Landolt (1983a, b) standard stars, which reproduce the Cousins system. In Table 2 we present *BVRI* data for 35 red giant stars obtained using Neckel and Chini (1980) standard stars. Their $(V-R)$ and $(V-I)$ colour indices can be transformed to Cousins system through the improved equations derived by Taylor *et al.* (1989). When no other identification exists, the Hipparcos running number or the Hipparcos Proposal number are given. The quoted error is always the standard deviation of the average, and never exceeds 0.040 mag, except for colour indices given in parenthesis in both tables.

Acknowledgements.

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TABLE 1. *UBVRI data for programme stars (Tied into the standard stars of Landolt (1983a,b)).*

Identification			R.A. (1950)	DEC (1950)	V	error	B-V	error	U-B	error	V-R	error	V-I	error	Obs.
0620030005			2 21 45	+49 33.9	11.143	0.011	1.294	0.006	1.228	0.007	0.808	0.009	1.445	0.002	2
I 189 46			2 29 10	+57 59.5	10.362	0.023	1.356	0.016	(1.1)		0.725	0.002	1.413	0.018	2
LP 197-044			2 41 36	+42 18.9	11.105	0.002	0.936	0.005	0.701	0.004	0.546	0.007	1.033	0.023	3
LP 355-072	BD +21 0440		3 17 40	+22 12.9	10.236	0.002	1.436	0.009	1.416	0.011	0.805	0.001	1.467	0.008	2
LTT 11119	BD +78 0114		3 21 9	+78 32.4	10.367	0.006	0.845	0.001	0.589	0.002	0.469	0.004	0.880	0.005	2
SAO 4946	BD +74 4946		3 31 7	+74 28.3	9.652	0.010	1.438	0.001	1.448	0.003	0.783	0.025	1.481	0.020	2
G 246-48			3 42 37	+60 18.5	9.973	0.013	0.758	0.007	0.332	0.007	0.421	0.011	0.813	0.002	2
HD 283036			3 49 45	+26 13.0	10.470	0.013	0.626	0.006	0.139	0.001	0.366	0.006	0.717	0.007	3
	BD +42 0849		3 52 11	+43 12.8	10.150	0.029	1.259	0.008	1.179	0.004	0.763	0.007	1.419	0.037	2
HD 232866	BD +50 0871	J	3 56 3	+50 45.1	9.985	0.014	0.706	0.030	(0.2)		0.401	0.005	0.785	0.003	2
	BD +23 0635		4 8 53	+23 30.4	9.359	0.006	1.088	0.032	(0.7)		0.680	0.003	1.374	0.028	2
MCC 436			4 11 50	+66 46.9	10.276	0.039	1.222	0.004	1.168	0.001	0.742	0.001	1.342	0.019	2
	BD +33 0858		4 22 45	+34 6.0	10.689	0.011	1.004	0.026	(0.8)		0.609	0.005	1.106	0.004	2
	BD +20 0774		4 30 33	+21 3.9	10.566	0.030	1.257	0.019	1.197	0.006	0.754	0.008	1.365	0.001	2
I 189 55	BD +43 1027		4 35 31	+43 49.2	10.107	0.016	1.242	0.008	0.982	0.002	0.678	0.019	1.320	0.008	2
I 189 56	BD +41 0944		4 40 59	+42 9.1	10.177	0.002	1.347	0.012	1.098	0.014	0.712	0.003	1.398	0.006	2
I 189 71			4 48 52	+43 12.5	10.983	0.012	1.279	0.010	1.103	0.017	0.705	0.002	1.348	0.016	3
I 119 158	BD +52 0913		5 1 28	+52 44.5	10.031	0.009	1.047	0.004	0.912	0.006	0.641	0.001	1.201	0.019	2
HD 241701	BD +32 0911		5 10 55	+32 22.8	9.640	0.001	0.216	0.006	-0.225	0.014	0.123	0.003	0.256	0.001	2
HD 245380	BD +23 0962		5 33 49	+23 8.6	9.637	0.018	0.077	0.004	-0.366	0.006	0.066	0.015	0.116	0.011	2
HD 245545	BD +23 0973		5 34 31	+23 6.5	10.224	0.015	0.097	0.006	-0.072	0.004	0.072	0.011	0.123	0.014	2
HD 245546	BD +23 0974		5 34 33	+23 7.1	10.665	0.010	0.184	0.011	0.055	0.008	0.127	0.006	0.240	0.006	2
LP 003-297			5 36 41	+86 3.4	10.910	0.013	0.685	0.004	-0.005	0.012	0.430	0.006	0.867	0.004	2
HD 248048	BD +31 1114		5 47 3	+31 59.2	9.610	0.019	1.341	0.004	1.282	0.038	0.718	0.010	1.325	0.001	2
I 189 82			5 48 14	+30 36.7	9.599	0.024	0.355	0.003	0.137	0.010	0.196	0.014	0.392	0.001	2
SAO 13716	BD +63 0631		6 1 52	+63 23.3	8.581	0.001	1.483	0.002	1.505	0.010	0.781	0.022	1.563	0.039	2
I 189 112	BD +22 1204		6 7 33	+22 35.6	9.754	0.001	1.297	0.001	1.229	0.024	0.679	0.013	1.339	0.020	2
I 189 115	BD +25 1148		6 7 57	+25 35.2	9.235	0.030	0.386	0.010	0.059	0.001	0.238	0.002	0.468	0.002	2
I 189 118	BD +24 1152		6 8 42	+24 0.3	10.775	0.039	0.912	0.013	0.598	0.033	0.494	0.002	0.954	0.001	2
G 101-45	BD +44 1485	A	6 31 40	+44 41.5	10.190	0.007	0.996	0.007	0.848	0.001	0.583	0.002	1.079	0.002	2
LP 087-145		A	6 36 29	+61 11.1	11.465	0.009	1.364	0.038	(1.3)		0.802	0.016	1.549	0.020	3
		B			11.921	0.021	0.443	0.012	-0.008	0.020	0.286	0.009	0.557	0.012	3
LP 254-035	BD +35 1523		6 52 31	+35 43.1	9.751	0.028	0.162	0.016	0.110	0.011	0.069	0.001	0.156	0.005	2
G 111-48			7 55 44	+45 33.3	10.026	0.019	0.855	0.001	0.503	0.011	0.472	0.012	0.920	0.004	3
LP 018-237			9 16 11	+75 42.1	11.159	0.010	0.609	0.008	0.015	0.009	0.372	0.007	0.731	0.003	2
	BD +23 2086		9 19 29	+22 45.2	10.180	0.012	0.955	0.008	0.723	0.004	0.576	0.004	1.117	0.010	2
	BD +37 1977		9 21 16	+36 56.0	10.170	0.018	-0.242	0.012	-1.264	0.038	-0.141	0.014	-0.324	0.013	2
LP 165-063			9 28 24	+47 44.9	11.212	0.011	1.289	0.015	(1.3)		0.748	0.016	1.423	0.009	3
	BD +33 1878		9 30 44	+32 45.4	9.769	0.010	0.850	0.003	0.596	0.014	0.487	0.003	0.917	0.014	2
GD 299			9 34 47	+55 19.4	12.076	0.010	-0.202	0.001	-1.159	0.001	(-0.1)		-0.098	0.027	2
G 235-48			9 48 37	+60 31.2	12.622	0.003	0.944	0.002	0.629	0.030	0.573	0.010	1.119	0.014	2
GD 300			9 51 59	+51 51.4	10.657	0.010	0.956	0.009	0.774	0.001	0.506	0.001	0.975	0.002	2
LP 018-384			9 56 35	+79 56.4	11.313	0.011	0.030	0.003	0.009	0.012	-0.004	0.010	-0.005	0.010	2
LTT 12733			10 8 36	+71 49.1	10.739	0.004	0.862	0.008	0.572	0.002	0.511	0.001	0.965	0.002	2
G 118-41			10 11 48	+39 13.0	11.637	0.003	1.127	0.008	1.078	0.009	0.703	0.003	1.312	0.040	2
G 118-53			10 19 7	+37 10.9	10.575	0.005	1.398	0.008	1.216	0.034	0.830	0.037	1.588	0.007	2
	BD +35 2182		10 44 1	+35 10.5	10.630	0.005	0.760	0.006	0.302	0.001	0.429	0.001	0.834	0.003	2
0985214017			10 57 1	+43 26.3	10.642	0.005	1.176	0.002	1.073	0.021	0.683	0.008	1.279	0.007	2
G 176-25			11 18 10	+37 55.4	11.232	0.002	1.131	0.006	1.069	0.001	0.660	0.012	1.250	0.001	2
G 122-27			11 28 11	+44 2.0	11.129	0.011	1.207	0.010	(1.1)		0.797	0.015	1.482	0.002	2
AG +67 529	BD +68 0662	A	11 46 25	+67 36.3	7.431	0.005	0.724	0.012	0.383	0.007	0.410	0.005	0.806	0.002	2
		B			8.384	0.003	0.350	0.012	0.099	0.001	0.203	0.005	0.424	0.011	2
	BD +52 1602		11 57 50	+52 14.2	10.070	0.005	1.209	0.004	1.279	0.003	0.616	0.002	1.153	0.001	2

REMARKS: HD 232866 r = 5" θ = 340° Joint photometry (A+B)
G 101-45 r = 25" θ = 0° Photometry of component A alone
LP 087-145 r = 44" θ = 260° Photometry of components A and B
AG +67 529 r = 13" θ = 180° Photometry of components A and B

TABLE 2. *BVRI data for programme stars (Tied into the standard stars of Neckel and Chini (1980)).*

Identification		R.A. (1950)	DEC (1950)	V	error	(B-V)	error	(V-R)	error	(V-I)	error	Obs.
I189 -172		17 18 44.0	-16 46 14.0	10.508	0.023	1.163	0.029	0.875	0.033	1.608	0.040	2
I189 -173	HD 157090	17 19 01.6	-17 43 35.8	9.362	0.030	1.559	0.008	1.226	0.012	2.258	0.012	2
I189 -176		17 22 13.0	-16 41 06.0	10.345	0.022	1.469	0.020	1.031	0.026	1.835	0.002	2
I189 -181		17 48 49.0	-28 21 43.0	9.819	0.013	1.411	0.025	1.067	0.004	1.929	0.004	4
I189 -183	HD 316515	17 49 00.8	-28 26 22.6	8.844	0.029	1.886	0.004	1.387	0.025	2.691	0.006	3
I189 -186	HD 316466	17 51 20.0	-27 17 07.4	9.583	0.003	1.583	0.011	1.277	0.035	2.519	0.036	4
I189 -187	HD 316648	17 51 58.1	-27 32 01.3	9.511	0.028	1.251	0.030	1.073	0.026	1.921	0.016	4
I189 -191		17 55 19.0	-29 08 12.0	9.832	0.038	1.087	0.020	0.820	0.023	1.500	0.039	4
I189 -193		17 55 43.0	-30 21 11.0	9.742	0.026	1.726	0.020	1.505	0.010	(3.2)		3
I189 -195		17 56 04.0	-29 00 24.0	9.791	0.020	1.243	0.030	0.904	0.019	(1.6)		4
I189 -198		17 59 15.0	-29 40 28.0	10.694	0.038	1.248	0.012	0.995	0.028	1.722	0.038	3
I189 -200		17 59 51.0	-28 23 43.0	10.558	0.034	(1.6)		1.160	0.007	2.153	0.017	4
I189 -203		18 00 12.0	-29 37 19.0	10.296	0.033	1.802	0.009	1.537	0.013	(3.3)		3
I189 -210		18 12 41.0	-18 50 26.0	10.855	0.010	1.371	0.028	0.989	0.022	1.760	0.040	2
I189 -214		18 15 57.0	-21 03 11.0	10.943	0.011	1.319	0.016	0.974	0.002	1.797	0.005	2
I189 -215		18 20 48.0	-21 18 51.0	10.109	0.028	1.714	0.007	1.335	0.009	2.489	0.008	2
I189 -223		18 26 31.0	-18 42 18.0	9.310	0.022	1.201	0.022	0.907	0.025	1.731	0.040	4
I189 -224		18 27 13.0	-19 43 30.0	10.702	0.025	(1.2)		0.987	0.030	1.836	0.027	3
I189 -227		18 27 29.0	-20 59 05.0	10.978	0.019	1.442	0.032	1.111	0.024	2.094	0.013	4
I189 -230	HD 172656	18 38 59.9	-07 19 11.3	8.352	0.009	1.503	0.029	1.090	0.005	1.942	0.026	3
I189 -231		18 39 28.0	-05 58 51.0	9.873	0.040	1.348	0.009	1.049	0.012	1.978	0.023	3
I189 -232	HD 172903	18 40 19.1	-09 13 12.1	8.523	0.011	1.176	0.006	0.867	0.019	1.611	0.036	3
I189 -234		18 41 17.0	-09 22 20.0	10.779	0.004	1.384	0.037	(1.1)		2.028	0.007	2
I189 -236	HD 173477	18 43 04.1	-06 30 30.7	9.034	0.020			1.316	0.029	2.406	0.005	2
I189 -239		18 47 22.0	-06 28 41.0	8.739	0.023	1.821	0.030	1.369	0.003	2.596	0.006	2
I189 -246	HD 227049	19 58 24.2	37 21 04.3	9.192	0.040	1.189	0.010	0.893	0.036	1.583	0.013	3
I189 -248		20 00 26.0	37 15 15.0	10.849	0.013	1.354	0.040	1.017	0.022	(1.9)		2
I189 -249	HD 227454	20 02 18.0	38 03 00.0	10.073	0.003	1.110	0.005	0.772	0.008	1.411	0.017	2
I189 -256	HD 227828	20 06 06.0	35 34 00.0	9.215	0.005	1.468	0.035	1.068	0.006	1.949	0.013	2
I189 -257		20 07 23.0	35 48 31.0	10.576	0.034	1.259	0.006	0.908	0.004	1.636	0.023	2
I189 -260	HD 228277	20 10 24.0	37 48 00.0	10.215	0.033	1.261	0.006	0.894	0.004	1.614	0.018	3
I189 -261	HD 228286	20 10 32.1	34 45 51.8	8.572	0.033	1.345	0.007	0.997	0.004	1.789	0.013	3
I189 -262	HD 228379	20 11 29.9	34 59 36.9	8.778	0.006	1.349	0.008	0.976	0.007	1.778	0.023	2
I189 -264		20 11 35.9	36 40 12.0	10.067	0.024	1.680	0.008	1.228	0.008	2.222	0.017	2
I189 -267		20 17 41.0	37 02 39.0	10.501	0.015	1.582	0.017	1.181	0.003	2.193	0.009	3