APPENDIX A: SYNTHETIC COLOUR REDDENING TABLES

Synthetic colours for main sequence stars, computed as described in Section 4 of Drew et al (2014) from model atmospheres, are here tabulated in full for three representative reddening laws ($R_V = 2.5$, 3.1 and 3.8) and a range of reddenings ($A_0 = 0$, 2, 4, 6, 8, 10). The form of the reddening laws used is due to Fitzpatrick & Massa (2007).

When using the blue-filter tables, it should be borne in mind that beyond $g-r \sim 3$, the red leak in the u filter significantly alters $u-g$. In this domain we expect the synthetic colours to progressively become less reliable as they increasingly depend on hard-to-measure very low levels of red transmission. Objects that appear to have these extreme, peculiar colours are likely to be reddened red giants or supergiants, since reddened K-M main sequence stars are too faint to be detected in VPHAS+ exposures. Beyond $g-r \sim 3.5$ these table entries are italicised.

Two further tables of synthetic colours are included for K-M giants that have been computed using P98 library spectra. Data are provided for the $R = 3.1$ mean Galactic law only, for the limited purposes of (a) giving an impression of how these luminous red objects may contaminate $(u-g, g-r)$ diagrams at redder $(g-r)$ through u red leak (b) enabling comparisons with the M-giant spur commonly seen in $(r-H\alpha, r-i)$ colour-colour diagrams.

Table A1. VST/OmegaCAM synthetic colours for main-sequence stars in the $(u-g),(g-r)$ plane reddened with an $R_V = 2.5$ extinction law.

$R_V = 2.5$										
Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$	
Type	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$
$O6V$	−1.494	−0.299	−0.456	0.669	0.630	1.590	1.707	2.470	2.338	3.319
$O8V$	−1.463	−0.287	−0.426	0.678	0.659	1.597	1.734	2.475	2.352	3.322
$O9V$	−1.446	−0.282	−0.409	0.683	0.676	1.600	1.749	2.477	2.359	3.324
$B0V$	−1.433	−0.271	−0.397	0.693	0.687	1.610	1.757	2.487	2.357	3.333
$B1V$	−1.324	−0.240	−0.289	0.721	0.792	1.636	1.850	2.512	2.386	3.357
$B2V$	−1.209	−0.218	−0.177	0.743	0.902	1.657	1.947	2.531	2.417	3.376
$B3V$	−1.053	−0.186	−0.023	0.773	1.050	1.686	2.074	2.559	2.446	3.403
$B5V$	−0.828	−0.139	0.198	0.818	1.264	1.728	2.252	2.600	2.474	3.443
$B6V$	−0.728	−0.121	0.295	0.834	1.357	1.743	2.326	2.615	2.483	3.457
$B7V$	−0.580	−0.100	0.439	0.854	1.493	1.762	2.433	2.632	2.494	3.473
$B8V$	−0.388	−0.076	0.624	0.876	1.668	1.782	2.566	2.650	2.505	3.491
$B9V$	−0.198	−0.046	0.810	0.903	1.845	1.807	2.694	2.674	2.504	3.513
$A0V$	−0.053	−0.005	0.957	0.940	1.987	1.841	2.792	2.706	*2.489*	*3.543*
$A1V$	−0.019	0.005	0.990	0.950	2.018	1.851	2.809	2.715	*2.479*	*3.552*
$A2V$	0.021	0.025	1.030	0.969	2.058	1.868	2.832	2.732	*2.464*	*3.569*
$A3V$	0.038	0.059	1.054	0.999	2.086	1.897	2.847	2.758	*2.443*	*3.594*
$A5V$	0.067	0.125	1.089	1.062	2.121	1.956	2.850	2.815	*2.377*	*3.649*
$A7V$	0.044	0.199	1.073	1.132	2.109	2.023	2.816	2.880	*2.295*	*3.712*
$F0V$	−0.026	0.329	1.016	1.257	2.058	2.144	2.725	2.998	*2.125*	*3.829*
$F2V$	−0.049	0.387	0.999	1.313	2.043	2.197	2.687	3.050	*2.048*	*3.880*
$F5V$	−0.066	0.495	0.994	1.414	2.041	2.294	2.631	3.144	*1.914*	*3.971*
$F8V$	−0.040	0.576	1.029	1.490	2.075	2.365	2.607	3.212	*1.815*	*4.037*
$G0V$	−0.001	0.630	1.075	1.540	2.117	2.412	2.600	3.257	*1.754*	*4.081*
$G2V$	0.042	0.670	1.121	1.577	2.160	2.447	2.597	3.290	*1.707*	*4.113*
$G5V$	0.162	0.756	1.249	1.657	2.272	2.523	2.591	3.363	*1.603*	*4.185*
$G8V$	0.355	0.845	1.448	1.742	2.440	2.606	2.590	3.445	*1.491*	*4.266*
$K0V$	0.451	0.904	1.544	1.798	2.510	2.659	2.557	3.497	*1.405*	*4.316*
$K1V$	0.523	0.939	1.616	1.832	2.563	2.692	*2.539*	*3.529*	*1.355*	*4.348*
$K2V$	0.602	0.978	1.694	1.870	2.615	2.730	*2.514*	*3.566*	*1.297*	*4.385*
$K3V$	0.756	1.049	1.843	1.939	2.711	2.798	*2.462*	*3.634*	*1.192*	*4.452*
$K4V$	0.841	1.092	1.925	1.980	2.756	2.839	*2.422*	*3.675*	*1.125*	*4.493*
$K5V$	1.064	1.198	2.132	2.084	2.847	2.942	*2.297*	*3.776*	*0.946*	*4.593*
$K7V$	1.364	1.386	2.378	2.268	2.797	3.119	*1.898*	*3.948*	*0.484*	*4.757*
$M0V$	1.348	1.394	2.354	2.276	2.732	3.128	*1.798*	*3.955*	*0.378*	*4.763*
$M1V$	1.311	1.422	2.297	2.305	2.585	3.155	*1.579*	*3.979*	*0.151*	*4.784*
$M2V$	1.238	1.425	2.203	2.311	2.400	3.161	*1.332*	*3.984*	*−0.106*	*4.787*

Table A2. VST/OmegaCAM synthetic colours for main-sequence stars in the $(u-g),(g-r)$ plane reddened with an $R_V = 3.1$ extinction law.

$R_V = 3.1$										
Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$	
Type	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$
O6V	−1.494	−0.299	−0.753	0.504	0.028	1.280	0.834	2.031	1.584	2.761
O8V	−1.463	−0.287	−0.722	0.514	0.058	1.288	0.864	2.037	1.610	2.765
O9V	−1.446	−0.282	−0.705	0.518	0.075	1.292	0.880	2.040	1.624	2.768
B0V	−1.433	−0.271	−0.692	0.529	0.087	1.301	0.891	2.050	1.632	2.777
B1V	−1.324	−0.240	−0.584	0.558	0.195	1.329	0.995	2.076	1.719	2.802
B2V	−1.209	−0.218	−0.470	0.579	0.307	1.350	1.104	2.096	1.808	2.821
B3V	−1.053	−0.186	−0.315	0.610	0.460	1.379	1.250	2.125	1.923	2.849
B5V	−0.828	−0.139	−0.092	0.655	0.680	1.423	1.460	2.166	2.080	2.890
B6V	−0.728	−0.121	0.007	0.672	0.776	1.439	1.550	2.182	2.144	2.905
B7V	−0.580	−0.100	0.152	0.692	0.918	1.458	1.682	2.200	2.234	2.922
B8V	−0.388	−0.076	0.340	0.714	1.101	1.478	1.850	2.219	2.344	2.940
B9V	−0.198	−0.046	0.528	0.742	1.285	1.504	2.019	2.244	2.445	2.964
A0V	−0.053	−0.005	0.675	0.780	1.431	1.540	2.153	2.277	2.514	2.995
A1V	−0.019	0.005	0.709	0.790	1.464	1.550	2.181	2.287	2.525	3.005
A2V	0.021	0.025	0.749	0.809	1.505	1.568	2.217	2.304	2.538	3.021
A3V	0.038	0.059	0.771	0.840	1.531	1.597	2.241	2.332	2.541	3.048
A5V	0.067	0.125	0.805	0.904	1.567	1.658	2.269	2.390	2.523	3.105
A7V	0.044	0.199	0.788	0.975	1.554	1.726	2.252	2.456	2.474	3.169
F0V	−0.026	0.329	0.728	1.101	1.501	1.849	2.192	2.577	2.356	3.288
F2V	−0.049	0.387	0.709	1.157	1.486	1.904	2.171	2.630	2.304	3.341
F5V	−0.066	0.495	0.701	1.260	1.483	2.003	2.155	2.726	2.220	3.434
F8V	−0.040	0.576	0.734	1.337	1.520	2.076	2.173	2.796	2.168	3.502
G0V	−0.001	0.630	0.779	1.388	1.566	2.124	2.201	2.842	*2.140*	*3.547*
G2V	0.042	0.670	0.825	1.425	1.612	2.160	2.230	2.877	*2.120*	*3.580*
G5V	0.162	0.756	0.952	1.507	1.736	2.238	2.306	2.952	*2.073*	*3.653*
G8V	0.355	0.845	1.149	1.593	1.924	2.321	2.414	3.035	*2.024*	*3.735*
K0V	0.451	0.904	1.247	1.649	2.012	2.376	2.446	3.088	*1.967*	*3.787*
K1V	0.523	0.939	1.319	1.683	2.077	2.409	2.471	3.120	*1.934*	*3.819*
K2V	0.602	0.978	1.398	1.722	2.145	2.447	2.492	3.158	*1.893*	*3.857*
K3V	0.756	1.049	1.550	1.791	2.275	2.516	2.523	3.226	*1.816*	*3.925*
K4V	0.841	1.092	1.634	1.833	2.342	2.558	2.528	3.268	*1.762*	*3.966*
K5V	1.064	1.198	1.848	1.938	2.501	2.661	2.512	3.370	*1.609*	*4.067*
K7V	1.364	1.386	2.116	2.122	2.610	2.841	*2.261*	*3.545*	*1.173*	*4.238*
M0V	1.348	1.394	2.095	2.131	2.566	2.850	*2.174*	*3.553*	*1.068*	*4.245*
M1V	1.311	1.422	2.046	2.160	2.462	2.878	*1.981*	*3.580*	*0.842*	*4.268*
M2V	1.238	1.425	1.959	2.165	2.318	2.884	*1.754*	*3.585*	*0.587*	*4.273*

Table A3. VST/OmegaCAM synthetic colours for main-sequence stars in the $(u-g),(g-r)$ plane reddened with an $R_V = 3.8$ extinction law.

$R_V = 3.8$										
Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$	
Type	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$
O6V	−1.494	−0.299	−0.910	0.373	−0.299	1.029	0.334	1.671	0.968	2.299
O8V	−1.463	−0.287	−0.879	0.383	−0.269	1.037	0.364	1.677	0.997	2.304
O9V	−1.446	−0.282	−0.862	0.387	−0.251	1.041	0.381	1.680	1.013	2.306
B0V	−1.433	−0.271	−0.849	0.398	−0.239	1.051	0.393	1.690	1.023	2.316
B1V	−1.324	−0.240	−0.741	0.427	−0.131	1.079	0.500	1.717	1.124	2.342
B2V	−1.209	−0.218	−0.627	0.449	−0.018	1.101	0.611	1.738	1.229	2.362
B3V	−1.053	−0.186	−0.472	0.480	0.136	1.131	0.762	1.767	1.369	2.391
B5V	−0.828	−0.139	−0.247	0.526	0.358	1.175	0.980	1.810	1.568	2.432
B6V	−0.728	−0.121	−0.149	0.543	0.455	1.191	1.074	1.826	1.652	2.447
B7V	−0.580	−0.100	−0.003	0.563	0.599	1.211	1.212	1.844	1.775	2.466
B8V	−0.388	−0.076	0.186	0.585	0.784	1.232	1.391	1.864	1.930	2.485
B9V	−0.198	−0.046	0.375	0.614	0.971	1.259	1.570	1.890	2.082	2.509
A0V	−0.053	−0.005	0.522	0.652	1.118	1.295	1.713	1.925	2.199	2.542
A1V	−0.019	0.005	0.556	0.663	1.151	1.305	1.744	1.934	2.222	2.552
A2V	0.021	0.025	0.596	0.682	1.192	1.324	1.783	1.952	2.252	2.569
A3V	0.038	0.059	0.617	0.713	1.216	1.354	1.809	1.981	2.270	2.596
A5V	0.067	0.125	0.650	0.777	1.252	1.416	1.843	2.041	2.285	2.655
A7V	0.044	0.199	0.631	0.849	1.238	1.485	1.829	2.108	2.258	2.721
F0V	−0.026	0.329	0.570	0.976	1.183	1.610	1.775	2.231	2.180	2.842
F2V	−0.049	0.387	0.550	1.033	1.166	1.665	1.758	2.285	2.149	2.895
F5V	−0.066	0.495	0.540	1.137	1.162	1.766	1.752	2.383	2.110	2.991
F8V	−0.040	0.576	0.573	1.215	1.198	1.841	1.782	2.455	2.104	3.061
G0V	−0.001	0.630	0.616	1.266	1.244	1.890	1.822	2.503	2.112	3.107
G2V	0.042	0.670	0.662	1.304	1.290	1.926	1.862	2.538	2.122	3.141
G5V	0.162	0.756	0.787	1.387	1.417	2.006	1.969	2.615	2.150	3.217
G8V	0.355	0.845	0.984	1.473	1.611	2.090	2.128	2.699	2.192	3.299
K0V	0.451	0.904	1.081	1.530	1.704	2.146	2.194	2.753	2.184	3.352
K1V	0.523	0.939	1.154	1.564	1.773	2.179	2.243	2.786	2.182	3.385
K2V	0.602	0.978	1.233	1.603	1.847	2.218	2.291	2.824	2.173	3.423
K3V	0.756	1.049	1.386	1.673	1.988	2.287	2.378	2.892	2.149	3.491
K4V	0.841	1.092	1.470	1.715	2.063	2.329	2.417	2.934	*2.124*	*3.533*
K5V	1.064	1.198	1.687	1.820	2.250	2.432	2.492	3.037	*2.032*	*3.635*
K7V	1.364	1.386	1.965	2.006	2.433	2.615	2.405	3.216	*1.669*	*3.810*
M0V	1.348	1.394	1.946	2.014	2.399	2.624	2.335	3.225	*1.570*	*3.818*
M1V	1.311	1.422	1.900	2.043	2.318	2.653	2.176	3.252	*1.355*	*3.844*
M2V	1.238	1.425	1.817	2.048	2.198	2.659	1.979	3.259	*1.108*	*3.850*

Table A4. VST/OmegaCAM synthetic colours for main-sequence stars in the $(r-i),(r-H\alpha)$ plane reddened with an $R_V = 2.5$ extinction law.

$R_V = 2.5$												
Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$		$A_0 = 10$	
Type	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$
O6V	−0.145	0.071	0.337	0.235	0.801	0.365	1.248	0.461	1.682	0.527	2.104	0.565
O8V	−0.152	0.055	0.332	0.221	0.798	0.352	1.248	0.450	1.683	0.517	2.106	0.555
O9V	−0.153	0.049	0.331	0.216	0.798	0.348	1.248	0.446	1.684	0.513	2.108	0.552
B0V	−0.150	0.054	0.335	0.220	0.801	0.351	1.252	0.449	1.688	0.516	2.112	0.555
B1V	−0.136	0.048	0.348	0.214	0.815	0.345	1.266	0.443	1.702	0.509	2.126	0.548
B2V	−0.123	0.045	0.361	0.211	0.828	0.341	1.278	0.438	1.714	0.504	2.138	0.542
B3V	−0.104	0.044	0.380	0.209	0.847	0.338	1.297	0.434	1.733	0.499	2.156	0.536
B5V	−0.077	0.039	0.406	0.202	0.872	0.330	1.322	0.425	1.757	0.488	2.180	0.525
B6V	−0.068	0.036	0.415	0.198	0.881	0.326	1.330	0.420	1.766	0.484	2.189	0.519
B7V	−0.057	0.029	0.426	0.192	0.892	0.319	1.341	0.413	1.776	0.476	2.199	0.511
B8V	−0.045	0.018	0.439	0.180	0.904	0.307	1.353	0.400	1.788	0.463	2.211	0.498
B9V	−0.028	0.006	0.455	0.167	0.920	0.293	1.369	0.386	1.804	0.448	2.227	0.482
A0V	−0.009	−0.005	0.474	0.155	0.939	0.280	1.388	0.372	1.823	0.433	2.245	0.467
A1V	−0.003	−0.003	0.479	0.157	0.944	0.281	1.393	0.373	1.827	0.434	2.250	0.467
A2V	0.006	−0.004	0.488	0.156	0.953	0.280	1.402	0.371	1.836	0.432	2.258	0.465
A3V	0.021	−0.008	0.503	0.151	0.967	0.275	1.415	0.365	1.849	0.425	2.271	0.457
A5V	0.051	0.005	0.532	0.162	0.995	0.283	1.443	0.371	1.876	0.429	2.297	0.460
A7V	0.083	0.027	0.563	0.181	1.025	0.300	1.471	0.386	1.903	0.442	2.324	0.471
F0V	0.149	0.084	0.626	0.232	1.085	0.346	1.529	0.427	1.960	0.478	2.379	0.503
F2V	0.177	0.109	0.653	0.255	1.111	0.366	1.555	0.445	1.984	0.495	2.403	0.518
F5V	0.225	0.149	0.699	0.290	1.156	0.398	1.598	0.473	2.026	0.520	2.444	0.540
F8V	0.259	0.173	0.731	0.312	1.187	0.417	1.628	0.490	2.055	0.534	2.473	0.553
G0V	0.280	0.188	0.751	0.325	1.206	0.428	1.646	0.500	2.074	0.543	2.491	0.560
G2V	0.295	0.197	0.766	0.333	1.220	0.435	1.660	0.506	2.087	0.548	2.504	0.565
G5V	0.327	0.217	0.797	0.350	1.250	0.450	1.689	0.518	2.115	0.558	2.531	0.573
G8V	0.358	0.233	0.827	0.364	1.279	0.461	1.716	0.527	2.141	0.565	2.556	0.579
K0V	0.385	0.245	0.852	0.374	1.303	0.469	1.740	0.534	2.165	0.570	2.579	0.582
K1V	0.399	0.251	0.866	0.379	1.316	0.473	1.753	0.537	2.177	0.573	2.592	0.584
K2V	0.415	0.258	0.882	0.385	1.332	0.478	1.768	0.540	2.192	0.575	2.606	0.586
K3V	0.445	0.270	0.910	0.395	1.359	0.486	1.794	0.547	2.218	0.580	2.631	0.589
K4V	0.464	0.278	0.929	0.401	1.377	0.491	1.812	0.551	2.235	0.583	2.649	0.591
K5V	0.521	0.302	0.985	0.422	1.433	0.509	1.867	0.565	2.289	0.595	2.703	0.601
K7V	0.721	0.390	1.189	0.502	1.641	0.582	2.078	0.632	2.505	0.657	2.922	0.659
M0V	0.787	0.413	1.257	0.524	1.711	0.603	2.151	0.653	2.580	0.676	2.998	0.677
M1V	0.931	0.470	1.405	0.578	1.863	0.654	2.307	0.701	2.738	0.722	3.160	0.721
M2V	1.111	0.526	1.590	0.630	2.052	0.703	2.499	0.746	2.933	0.764	3.357	0.760

Table A5. VST/OmegaCAM synthetic colours for main-sequence stars in the $(r-i),(r-H\alpha)$ plane reddened with an $R_V = 3.1$ extinction law.

$R_V = 3.1$												
Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$		$A_0 = 10$	
Type	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$
O6V	−0.145	0.071	0.280	0.213	0.694	0.330	1.097	0.422	1.491	0.490	1.877	0.536
O8V	−0.152	0.055	0.275	0.199	0.690	0.317	1.096	0.410	1.491	0.479	1.879	0.526
O9V	−0.153	0.049	0.274	0.193	0.690	0.312	1.096	0.405	1.492	0.475	1.880	0.522
B0V	−0.150	0.054	0.278	0.198	0.694	0.316	1.100	0.409	1.496	0.478	1.884	0.526
B1V	−0.136	0.048	0.291	0.192	0.708	0.310	1.114	0.403	1.510	0.472	1.898	0.519
B2V	−0.123	0.045	0.304	0.188	0.721	0.306	1.126	0.398	1.523	0.466	1.911	0.513
B3V	−0.104	0.044	0.323	0.186	0.740	0.303	1.145	0.394	1.541	0.462	1.929	0.508
B5V	−0.077	0.039	0.349	0.180	0.765	0.295	1.170	0.386	1.566	0.452	1.954	0.497
B6V	−0.068	0.036	0.358	0.177	0.774	0.291	1.179	0.381	1.575	0.448	1.963	0.492
B7V	−0.057	0.029	0.369	0.170	0.785	0.284	1.190	0.374	1.586	0.440	1.973	0.484
B8V	−0.045	0.018	0.382	0.158	0.797	0.272	1.202	0.362	1.598	0.427	1.985	0.471
B9V	−0.028	0.006	0.398	0.145	0.813	0.259	1.218	0.348	1.614	0.413	2.001	0.456
A0V	−0.009	−0.005	0.418	0.133	0.833	0.246	1.238	0.334	1.633	0.399	2.020	0.441
A1V	−0.003	−0.003	0.423	0.135	0.838	0.248	1.243	0.335	1.638	0.399	2.025	0.442
A2V	0.006	−0.004	0.432	0.134	0.847	0.247	1.251	0.334	1.646	0.397	2.033	0.439
A3V	0.021	−0.008	0.446	0.130	0.861	0.241	1.265	0.328	1.660	0.391	2.047	0.432
A5V	0.051	0.005	0.476	0.141	0.890	0.250	1.293	0.335	1.687	0.396	2.073	0.436
A7V	0.083	0.027	0.507	0.160	0.920	0.268	1.322	0.350	1.716	0.410	2.101	0.448
F0V	0.149	0.084	0.570	0.212	0.981	0.315	1.382	0.393	1.774	0.449	2.158	0.483
F2V	0.177	0.109	0.598	0.235	1.008	0.336	1.408	0.413	1.799	0.466	2.183	0.499
F5V	0.225	0.149	0.644	0.271	1.053	0.369	1.452	0.442	1.842	0.493	2.225	0.524
F8V	0.259	0.173	0.677	0.294	1.084	0.389	1.482	0.460	1.872	0.509	2.254	0.538
G0V	0.280	0.188	0.697	0.307	1.104	0.400	1.501	0.470	1.890	0.518	2.272	0.546
G2V	0.295	0.197	0.712	0.315	1.118	0.408	1.515	0.477	1.904	0.524	2.286	0.551
G5V	0.327	0.217	0.743	0.332	1.149	0.423	1.545	0.490	1.933	0.535	2.314	0.560
G8V	0.358	0.233	0.773	0.347	1.177	0.435	1.573	0.500	1.960	0.543	2.340	0.567
K0V	0.385	0.245	0.799	0.357	1.203	0.444	1.597	0.507	1.984	0.549	2.364	0.571
K1V	0.399	0.251	0.812	0.362	1.216	0.448	1.610	0.511	1.996	0.552	2.376	0.574
K2V	0.415	0.258	0.828	0.368	1.231	0.453	1.625	0.515	2.011	0.555	2.391	0.576
K3V	0.445	0.270	0.857	0.378	1.259	0.461	1.653	0.522	2.038	0.560	2.417	0.580
K4V	0.464	0.278	0.876	0.385	1.278	0.467	1.671	0.526	2.056	0.564	2.434	0.583
K5V	0.521	0.302	0.932	0.406	1.333	0.486	1.726	0.542	2.111	0.578	2.489	0.594
K7V	0.721	0.390	1.136	0.487	1.542	0.560	1.938	0.612	2.326	0.642	2.708	0.655
M0V	0.787	0.413	1.205	0.510	1.612	0.582	2.010	0.633	2.401	0.662	2.784	0.674
M1V	0.931	0.470	1.353	0.564	1.764	0.633	2.165	0.681	2.559	0.709	2.945	0.719
M2V	1.111	0.526	1.537	0.616	1.952	0.683	2.357	0.728	2.753	0.753	3.142	0.760

Table A6. VST/OmegaCAM synthetic colours for main-sequence stars in the $(r-i),(r-H\alpha)$ plane reddened with an $R_V = 3.8$ extinction law.

$R_V = 3.8$												
Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$		$A_0 = 10$	
Type	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$
O6V	−0.145	0.071	0.236	0.195	0.609	0.300	0.977	0.386	1.339	0.454	1.695	0.504
O8V	−0.152	0.055	0.230	0.180	0.606	0.286	0.975	0.374	1.338	0.442	1.696	0.493
O9V	−0.153	0.049	0.229	0.175	0.605	0.282	0.975	0.369	1.339	0.438	1.697	0.490
B0V	−0.150	0.054	0.233	0.179	0.609	0.286	0.979	0.373	1.343	0.442	1.701	0.493
B1V	−0.136	0.048	0.247	0.174	0.623	0.280	0.993	0.367	1.357	0.435	1.716	0.486
B2V	−0.123	0.045	0.260	0.170	0.636	0.276	1.006	0.362	1.370	0.430	1.728	0.481
B3V	−0.104	0.044	0.279	0.168	0.655	0.273	1.025	0.359	1.389	0.426	1.747	0.476
B5V	−0.077	0.039	0.305	0.162	0.681	0.266	1.050	0.351	1.414	0.417	1.772	0.466
B6V	−0.068	0.036	0.314	0.159	0.690	0.262	1.059	0.347	1.423	0.413	1.781	0.461
B7V	−0.057	0.029	0.325	0.152	0.701	0.255	1.070	0.339	1.434	0.405	1.792	0.453
B8V	−0.045	0.018	0.338	0.140	0.713	0.243	1.083	0.327	1.446	0.392	1.804	0.440
B9V	−0.028	0.006	0.354	0.128	0.729	0.230	1.099	0.313	1.462	0.378	1.820	0.426
A0V	−0.009	−0.005	0.373	0.116	0.749	0.218	1.118	0.300	1.481	0.365	1.839	0.412
A1V	−0.003	−0.003	0.379	0.117	0.754	0.219	1.123	0.301	1.486	0.365	1.844	0.412
A2V	0.006	−0.004	0.388	0.117	0.763	0.218	1.132	0.300	1.495	0.364	1.853	0.410
A3V	0.021	−0.008	0.402	0.112	0.777	0.213	1.146	0.294	1.509	0.357	1.867	0.403
A5V	0.051	0.005	0.432	0.124	0.806	0.222	1.174	0.302	1.537	0.364	1.894	0.408
A7V	0.083	0.027	0.463	0.144	0.837	0.240	1.204	0.318	1.566	0.378	1.922	0.421
F0V	0.149	0.084	0.527	0.196	0.899	0.289	1.265	0.363	1.625	0.419	1.981	0.459
F2V	0.177	0.109	0.555	0.219	0.926	0.310	1.291	0.383	1.651	0.438	2.006	0.476
F5V	0.225	0.149	0.602	0.256	0.972	0.344	1.336	0.414	1.695	0.466	2.049	0.502
F8V	0.259	0.173	0.634	0.278	1.004	0.365	1.367	0.432	1.725	0.483	2.079	0.517
G0V	0.280	0.188	0.655	0.292	1.024	0.376	1.387	0.443	1.745	0.492	2.098	0.525
G2V	0.295	0.197	0.670	0.300	1.038	0.384	1.401	0.450	1.758	0.499	2.112	0.531
G5V	0.327	0.217	0.701	0.318	1.069	0.400	1.431	0.464	1.788	0.510	2.140	0.541
G8V	0.358	0.233	0.731	0.332	1.098	0.413	1.459	0.475	1.815	0.520	2.167	0.549
K0V	0.385	0.245	0.757	0.343	1.123	0.421	1.484	0.482	1.840	0.526	2.191	0.554
K1V	0.399	0.251	0.771	0.348	1.137	0.426	1.497	0.486	1.853	0.529	2.204	0.557
K2V	0.415	0.258	0.787	0.354	1.153	0.431	1.513	0.490	1.868	0.533	2.219	0.560
K3V	0.445	0.270	0.816	0.365	1.181	0.440	1.540	0.498	1.895	0.539	2.246	0.565
K4V	0.464	0.278	0.835	0.372	1.199	0.446	1.559	0.503	1.913	0.543	2.264	0.568
K5V	0.521	0.302	0.891	0.393	1.255	0.465	1.615	0.520	1.969	0.558	2.319	0.581
K7V	0.721	0.390	1.095	0.475	1.464	0.542	1.827	0.592	2.185	0.625	2.538	0.644
M0V	0.787	0.413	1.164	0.498	1.534	0.564	1.899	0.613	2.259	0.646	2.614	0.664
M1V	0.931	0.470	1.312	0.552	1.686	0.616	2.054	0.663	2.417	0.693	2.775	0.710
M2V	1.111	0.526	1.496	0.605	1.874	0.666	2.245	0.710	2.611	0.739	2.972	0.753

Table A7. VST/OmegaCAM blue-filter colours synthesised from P98 spectrophotometry for K-M giant stars, reddened using an $R_V = 3.1$ extinction law.

Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$		$A_0 = 10$	
Type	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$	$(u-g)$	$(g-r)$
K0III	1.082	1.003	1.867	1.741	2.561	2.462	2.710	3.169	1.915	3.864	0.689	4.551
K1III	1.226	1.090	2.011	1.823	2.672	2.539	2.705	3.242	1.820	3.935	0.574	4.620
K2III	1.367	1.175	2.139	1.906	2.749	2.621	2.658	3.322	1.699	4.014	0.442	4.697
K3III	1.599	1.258	2.369	1.982	2.920	2.691	2.677	3.389	1.637	4.078	0.366	4.759
K4III	1.998	1.461	2.747	2.170	3.108	2.867	2.540	3.554	1.380	4.234	0.095	4.907
K5III	2.124	1.512	2.826	2.228	3.046	2.932	2.327	3.625	1.122	4.310	−0.174	4.987
M0III	2.379	1.630	3.018	2.342	3.025	3.041	2.135	3.731	0.895	4.413	−0.401	5.088
M1III	2.300	1.634	2.933	2.347	2.938	3.048	2.047	3.738	0.805	4.420	−0.492	5.094
M2III	2.430	1.713	3.026	2.429	2.910	3.132	1.940	3.825	0.683	4.509	−0.616	5.186
M3III	2.316	1.685	2.864	2.402	2.642	3.107	1.614	3.801	0.343	4.486	−0.958	5.163
M4III	2.266	1.737	2.708	2.461	2.284	3.171	1.164	3.870	−0.124	4.559	−1.429	5.238
M5III	1.698	1.782	2.158	2.523	1.774	3.245	0.661	3.952	−0.634	4.648	−1.944	5.330

Table A8. VST/OmegaCAM red-filter colours synthesised from P98 spectrophotometry for K-M giant stars reddened using an $R_V = 3.1$ extinction law.

Spectral	$A_0 = 0$		$A_0 = 2$		$A_0 = 4$		$A_0 = 6$		$A_0 = 8$		$A_0 = 10$	
Type	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$	$(r-i)$	$(r-H\alpha)$
K0III	0.446	0.254	0.855	0.358	1.254	0.437	1.644	0.494	2.027	0.529	2.403	0.546
K1III	0.468	0.269	0.877	0.372	1.278	0.451	1.669	0.507	2.053	0.542	2.430	0.558
K2III	0.508	0.293	0.916	0.392	1.315	0.468	1.704	0.522	2.087	0.554	2.463	0.568
K3III	0.514	0.286	0.921	0.385	1.317	0.460	1.705	0.513	2.086	0.545	2.460	0.558
K4III	0.592	0.313	0.999	0.408	1.397	0.479	1.786	0.529	2.169	0.558	2.545	0.568
K5III	0.714	0.337	1.121	0.427	1.518	0.494	1.906	0.539	2.287	0.564	2.663	0.571
M0III	0.827	0.411	1.233	0.496	1.628	0.558	2.016	0.598	2.396	0.618	2.770	0.621
M1III	0.872	0.401	1.280	0.486	1.678	0.547	2.067	0.587	2.450	0.607	2.826	0.610
M2III	0.920	0.443	1.320	0.521	1.711	0.575	2.094	0.609	2.470	0.624	2.841	0.621
M3III	1.165	0.471	1.571	0.544	1.967	0.594	2.355	0.623	2.735	0.633	3.110	0.627
M4III	1.472	0.512	1.878	0.574	2.274	0.612	2.661	0.631	3.041	0.632	3.415	0.616
M5III	1.739	0.560	2.143	0.612	2.537	0.642	2.924	0.652	3.303	0.646	3.677	0.625