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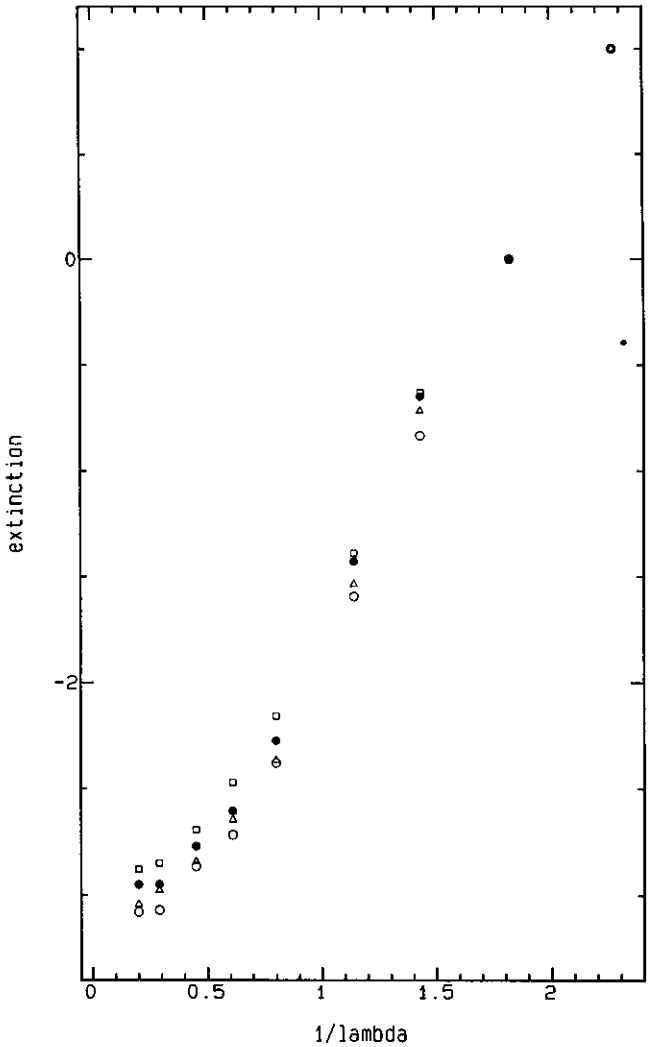

Figure 3. Plots of $E(IR-V)/E(B-V)$ against inverse wavelength for supergiants Ia – open circles, supergiants Iab–Ib–II – dots, giants – open squares and dwarfs IV–V – open triangles.

intrinsic colours $(IR-V)_0$ were corrected so as to satisfy equation (4). The greatest corrections should be applied to the M band, where the number of observations was the least, yet the corrections did not exceed the mean error of 0.05 mag.

Tables 3, 4, 5 and 6 contain our main results: intrinsic infrared colours of OB stars of different luminosity classes (Ia, Iab–Ib–II, III and IV–V). The mean errors may be calculated from formula

$$\sigma^2_{(IR-V_0)} = \sigma^2_{IR-V} + \sigma^2_a E^2(B-V) + a^2\sigma^2_{E(B-V)}, \qquad (6)$$

where σ_{IR-V} is the rms deviation of the observations $(IR-V)$, σ_a is the standard error of the slope calculated by the rms method and $\sigma_{E(B-V)}$ is the colour excess error.

For σ_{IR-V}, a value of 0.02 may be adopted. σ_a does not exceed 0.02 in the R, I, and J passbands, 0.03 in the H, K, and L passbands and 0.05 in the M passband. $\sigma_{E(B-V)}$ does not exceed 0.03.

These new intrinsic infrared colours of OB stars, obtained from five times as large a sample of stars as any previous

Table 2. An average interstellar extinction curve.

$1/\lambda$ [μm^{-1}]	$E(\lambda-V)/E(B-V)$
1.41	0.725 ±0.012
1.03	1.527 ±0.020
0.80	2.327 ±0.029
0.61	2.683 ±0.024
0.45	2.826 ±0.022
0.29	3.010 ±0.027
0.21	3.100 ±0.047

Table 3. Intrinsic infrared colour indices of supergiant Ia O- and B-type stars.

Sp	$(B-V)_0$	$(R-V)_0$	$(I-V)_0$	$(J-V)_0$	$(H-V)_0$	$(K-V)_0$	$(L-V)_0$	$(M-V)_0$
O5/O6	-0.32	0.22	0.47	0.71	0.87	0.90	0.97	0.98
O7	-0.31	0.21	0.46	0.69	0.84	0.87	0.94	0.95
O8	-0.30	0.20	0.44	0.67	0.81	0.84	0.91	0.92
O9	-0.27	0.18	0.39	0.59	0.73	0.75	0.82	0.83
O9.5	-0.24	0.15	0.34	0.52	0.65	0.67	0.72	0.73
B0	-0.22	0.14	0.31	0.48	0.59	0.61	0.66	0.67
B0.5	-0.20	0.12	0.28	0.43	0.54	0.55	0.60	0.61
B1	-0.19	0.11	0.26	0.40	0.51	0.52	0.57	0.58
B1.5	-0.17	0.09	0.23	0.36	0.46	0.47	0.51	0.52
B2	-0.16	0.08	0.22	0.33	0.43	0.44	0.48	0.48
B2.5	-0.14	0.07	0.19	0.29	0.38	0.38	0.42	0.42
B3	-0.13	0.06	0.17	0.26	0.35	0.35	0.39	0.39
B5	-0.08	0.02	0.09	0.14	0.21	0.21	0.23	0.23
B6	-0.06	0.00	0.06	0.09	0.16	0.16	0.17	0.17
B7	-0.04	-0.01	0.03	0.05	0.10	0.09	0.11	0.11
B8	-0.03	-0.02	0.01	0.02	0.08	0.06	0.08	0.08
B9	-0.01	-0.02	-0.02	-0.03	0.02	0.01	0.02	0.02

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Table 4. Intrinsic infrared colour indices of supergiant Iab–Ib–II O- and B-type stars.

Sp	$(B-V)_0$	$(R-V)_0$	$(I-V)_0$	$(J-V)_0$	$(H-V)_0$	$(K-V)_0$	$(L-V)_0$	$(M-V)_0$
O5/O6	-0.32	0.16	0.42	0.68	0.83	0.87	0.93	0.94
O7	-0.31	0.15	0.40	0.66	0.80	0.84	0.90	0.92
O8	-0.30	0.14	0.39	0.63	0.78	0.81	0.87	0.88
O9	-0.27	0.13	0.35	0.57	0.70	0.73	0.78	0.79
O9.5	-0.24	0.11	0.30	0.50	0.62	0.64	0.69	0.71
B0	-0.22	0.10	0.28	0.45	0.57	0.59	0.64	0.66
B0.5	-0.20	0.08	0.25	0.41	0.52	0.53	0.58	0.60
B1	-0.19	0.08	0.23	0.38	0.49	0.51	0.54	0.56
B1.5	-0.17	0.06	0.20	0.34	0.44	0.45	0.49	0.51
B2	-0.16	0.06	0.19	0.32	0.41	0.42	0.46	0.48
B2.5	-0.14	0.04	0.16	0.27	0.36	0.37	0.40	0.41
B3	-0.13	0.04	0.15	0.25	0.33	0.34	0.37	0.39
B5	-0.08	0.00	0.08	0.13	0.20	0.20	0.22	0.24
B6	-0.06	-0.01	0.05	0.09	0.15	0.15	0.16	0.17
B7	-0.04	-0.02	0.02	0.04	0.10	0.09	0.10	0.11
B8	-0.03	-0.03	0.00	0.02	0.07	0.06	0.08	0.09
B9	-0.01	-0.04	-0.02	-0.03	0.02	0.01	0.02	0.03

Table 5. Intrinsic infrared colour indices of giant O- and B-type stars.

Sp	$(B-V)_0$	$(R-V)_0$	$(I-V)_0$	$(J-V)_0$	$(H-V)_0$	$(K-V)_0$	$(L-V)_0$	$(M-V)_0$
O5/O6	-0.30	0.15	0.37	0.68	0.80	0.88	0.91	0.96
O7	-0.29	0.15	0.36	0.66	0.77	0.85	0.87	0.93
O8	-0.27	0.14	0.35	0.62	0.73	0.80	0.83	0.90
O9	-0.26	0.13	0.31	0.59	0.69	0.77	0.79	0.81
B0	-0.23	0.11	0.27	0.51	0.60	0.69	0.75	0.76
B0.5	-0.22	0.11	0.26	0.48	0.59	0.67	0.73	0.74
B1	-0.21	0.10	0.26	0.46	0.55	0.65	0.70	0.71
B1.5	-0.20	0.09	0.25	0.43	0.50	0.60	0.65	0.67
B2	-0.19	0.08	0.24	0.38	0.46	0.56	0.62	0.64
B3	-0.16	0.06	0.18	0.34	0.40	0.46	0.51	0.53
B5	-0.15	0.06	0.18	0.31	0.35	0.41	0.44	0.46
B6	-0.13	0.05	0.16	0.28	0.31	0.35	0.38	0.40
B7	-0.12	0.04	0.15	0.24	0.26	0.30	0.31	0.33
B8	-0.10	0.02	0.11	0.19	0.20	0.22	0.23	0.24
B9	-0.07	0.00	0.05	0.07	0.08	0.09	0.10	0.10

Table 6. Intrinsic infrared colour indices of dwarf O- and B-type stars.

Sp	$(B-V)_0$	$(R-V)_0$	$(I-V)_0$	$(J-V)_0$	$(H-V)_0$	$(K-V)_0$	$(L-V)_0$	$(M-V)_0$
O5/O6	-0.30	0.17	0.43	0.73	0.81	0.89	0.92	1.02
O7	-0.29	0.16	0.42	0.71	0.79	0.86	0.88	0.97
O8	-0.285	0.15	0.41	0.68	0.77	0.84	0.85	0.92
O9	-0.28	0.15	0.40	0.61	0.72	0.79	0.82	0.91
O9.5	-0.27	0.14	0.39	0.60	0.71	0.77	0.80	0.88
B0	-0.26	0.14	0.37	0.58	0.69	0.76	0.78	0.86
B0.5	-0.24	0.13	0.34	0.53	0.63	0.69	0.72	0.79
B1	-0.23	0.12	0.33	0.51	0.60	0.66	0.71	0.76
B1.5	-0.22	0.11	0.31	0.50	0.56	0.62	0.64	0.70
B2	-0.21	0.10	0.29	0.48	0.52	0.59	0.63	0.68
B2.5	-0.195	0.09	0.27	0.43	0.48	0.54	0.56	0.62
B3	-0.18	0.08	0.24	0.39	0.45	0.49	0.53	0.58
B4	-0.16	0.07	0.21	0.35	0.40	0.45	0.48	0.52
B5	-0.15	0.06	0.19	0.33	0.39	0.42	0.45	0.47
B6	-0.14	0.05	0.18	0.31	0.35	0.39	0.40	0.43
B7	-0.13	0.04	0.16	0.28	0.32	0.35	0.36	0.38
B8	-0.11	0.03	0.12	0.24	0.26	0.29	0.30	0.32
B9	-0.07	0.01	0.08	0.15	0.16	0.17	0.18	0.19

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