Chapter 21: **Table of contents, appendices, index, etc.**

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Table of contents, briefly:

Table of potentially useful constants and a few common equations

gravitational constant	G	$6.674 \cdot 10^{-11}$ m^3 kg^{-1} s^{-2}	$4\pi^2$ AU^3 M$_\odot^{-1}$ yr^{-2}
useful in		$F = GM_1\, m_2 / r^2 = gm_2$;	$P^2 = [4\pi^2 a^3] / [G(M_1{+}M_2)]$
and in		$v = [G(M_1{+}M_2) \cdot (2/r - 1/a)]^{1/2}$	
speed of light	c	$2.998 \cdot 10^8$ m s^{-1}	
useful in		$c = \lambda f$;	$\lambda = \lambda_0\, [1 + (v_r/c)]$
Planck constant	h	$6.626 \cdot 10^{-34}$ J s	$4.136 \cdot 10^{-15}$ eV s
useful in		$E = h f = h c / \lambda$	
Boltzmann constant	k	$1.381 \cdot 10^{-23}$ J K^{-1}	$8.617 \cdot 10^{-5}$ eV K^{-1}
useful in		$E \sim k\, T$;	$v \sim [2kT/m]^{1/2}$;
and in		$P = (\rho kT/m)$;	$H = kT / (g\, m)$
Stefan-Boltzmann constant	σ	$5.670 \cdot 10^{-8}$ J s^{-1} m^{-2} K^{-4}	$= \dfrac{2\pi^5 k^4}{15 h^3 c^2}$
useful in		$L = 4\pi r^2\, \sigma T^4$	
Wien's law		$\lambda = [2.898 \cdot 10^{-3}$ m K$] / [T$ (K)$]$	
converting eV to J		1 eV = $1.602 \cdot 10^{-19}$ J	
converting seconds to years		1 yr = $3.16 \cdot 10^7$ s	
mass of an electron	m_e	$9.109 \cdot 10^{-31}$ kg	0.511 MeV/c
unified atomic mass unit	m_u or u	$1.661 \cdot 10^{-27}$ kg	
mass of a hydrogen atom	m_H	$1.67 \cdot 10^{-27}$ kg	1.008 u
mass of a proton	m_p	938.3 MeV/c	1.0073 u
mass of a neutron	m_n	939.6 MeV/c	1.0087 u
astronomical unit	1 AU =	$1.496 \cdot 10^{11}$ m	
parsec	1 pc =	206,265 AU	$3.0857 \cdot 10^{16}$ m = 3.26 ly
light year	1 ly =	63,241 AU	$9.4607 \cdot 10^{15}$ m = 0.3066 pc

Pressure units: 1 Pa = 1 N/m^2 = 1 kg / (m s^2)
1 bar = 10^5 Pa
1 atm ~101 kPa = 1 atm ~760 mm Hg ~ 14 psi.

Table 4.1: Summary of orbital and physical properties of selected solar system objects

Object	semi-major axis (AU or km)	revolution period (days or years)	orbit eccentricity	& inclination to ecliptic or planet equator (°)	rotation period (hours or days)	obliquity (°)
Sun	_	_	_	_	25 – 34 d	7.25
Mercury	0.387	87.97 d	0.206	7.0	58.65 d	0.003
Venus	0.723	0.615	0.007	3.39	–243 d	177.4
Earth	1.0	1.0	0.017	7.2 to Sun eq.	23.93	23.44
Moon	384,400 km	27.32 d	0.055	5.15 to ecl.	27.32 d	6.69
Mars	1.52	1.88	0.094	1.85	1.026 d	25.19
Phobos	9,376 km	0.32 d	0.015	1.09	0.32 d	0
Deimos	23,463 km	1.26 d	~0	0.93	1.26 d	
4 Vesta	2.36	3.63	0.09	7.14	5.34	
Ceres	2.77	4.60	0.08	10.59	9.07	~3
2 Pallas	2.77	4.61	0.23	34.84	7.81	~78?
10 Hygiea	3.14	5.56	0.12	3.84	27.62	
Jupiter	5.20	11.86	0.05	1.31	9.93	3.13
Io	421,700 km	1.77 d	0.004	0.05	1.77 d	
Europa	670,900 km	3.55 d	0.009	0.47	3.55 d	0.1
Ganymede	$1.070 \cdot 10^6$ km	7.15 d	0.0013	0.20	7.15 d	
Callisto	$1.883 \cdot 10^6$ km	16.69 d	0.0074	~1	16.69 d	0
Saturn	9.58	29.46	0.056	2.49	10.55	26.73
Mimas	185,539 km	0.94 d	0.02	1.57	0.94 d	0
Enceladus	237,948 km	1.37 d	0.005	0.019	1.37 d	0
Tethys	294,619 km	1.89 d	~0	1.12	1.89 d	0
Dione	377,396 km	2.74 d	0.002	0.019	2.74 d	0
Rhea	527,108 km	4.52 d	0.001	0.345	4.52 d	0
Titan	$1.222 \cdot 10^6$ km	15.95 d	0.029	0.35	15.95 d	0
Iapetus	$3.561 \cdot 10^6$ km	79.32 d	0.029	15.47	79.32 d	0
2060 Chiron	13.71	50.76	0.38	6.93	5.92	
Uranus	19.19	84.02	0.05	0.77	–17.24	97.8
Miranda	129,390 km	1.41 d	0.0013	4.23	1.41 d	0
Ariel	191,020 km	2.52 d	0.0012	0.26	2.52 d	?
Umbriel	266,300 km	4.14 d	0.0039	0.21	4.14 d	0?
Titania	435,910 km	8.71 d	0.0011	0.34	8.71 d	?
Oberon	583,520 km	13.46 d	0.0014	0.06	13.46 d	?
5145 Pholus	20.36	91.85	0.57	24.65	9.98	?
Neptune	30.07	164.8	0.0087	1.77	16.11	28.32
Proteus	117,647 km	1.122 d	~0	0.52	1.122 d	~0
Triton	354,759 km	– 5.88 d	~0	157	5.88	0
Pluto	39.26	247.7	0.25	17.16	6.387 d	122.5
Charon	19,591 km	6.387 d	0	0	6.387 d	
Haumea	43.22	284	0.19	28.19	3.92	?
Makemake	45.72	309	0.16	29.00	7.8	?
Eris	67.78	558	0.44	44.04	25.9	?
90377 Sedna	524.4	~11,400	0.85	11.93	10.3	?

Table 4.1: Summary of orbital and physical properties of selected solar system objects, continued

Object	mass (kg)	diameter (km)	ave. density (g/cm³)	albedo (Bond or geom.)	surface temp. (K)	atmosphere or color
Sun	$1.99 \cdot 10^{30}$	$1.39 \cdot 10^{6}$ (eq.)	1.41	_	5780	H, He
Mercury	$3.30 \cdot 10^{23}$	4,879	5.43	0.068 Bond	80 – 700	trace
Venus	$4.87 \cdot 10^{24}$	12,104	5.24	0.90 Bond	737	CO_2, N_2, SO_2
Earth	$5.97 \cdot 10^{24}$	12,742	5.51	0.31 Bond	184 – 330	N_2, O_2, Ar, H_2O
Moon	$7.35 \cdot 10^{22}$	3,474	3.35	0.12 geom	70 – 390	trace
Mars	$6.42 \cdot 10^{23}$	6,779	3.93	0.25 Bond	130 – 308	CO_2, Ar, N_2, O_2
Phobos	$1.07 \cdot 10^{16}$	27 x 22 x 18	1.88	0.071 geom	~233	
Deimos	$\cdot 10^{20}$	15 x 12 x 11	1.47	0.068 geom	~233	
4 Vesta	$2.59 \cdot 10^{20}$	~525	3.46	0.42 geom	85 – 270	V-type
Ceres	$9.39 \cdot 10^{20}$	938	2.17	0.09 geom	168 – 235	C-type
2 Pallas	$2.11 \cdot 10^{20}$	544	~2.8	0.16 geom	~164	B-type
10 Hygiea	$8.67 \cdot 10^{19}$	~431	2.08	0.07 geom	~164	C-type
Jupiter	$1.90 \cdot 10^{27}$	139,822	1.33	0.50 Bond	165 @ 1 bar	H_2, H2, CH_4, NH_3
Io	$8.93 \cdot 10^{22}$	3,643	3.53	0.63 geom	110	trace SO_2
Europa	$4.80 \cdot 10^{22}$	3,122	3.01	0.67 geom	102	trace
Ganymede	$1.48 \cdot 10^{23}$	5,268	1.94	0.43 geom	110	trace O_2
Callisto	$1.08 \cdot 10^{23}$	4.821	1.83	0.2 geom	134	trace O_2, CO_2
Saturn	$5.68 \cdot 10^{26}$	116,464	0.69	0.34 Bond	134 @ 1 bar	H_2, He, CH_4, NH_3
Mimas	$3.75 \cdot 10^{19}$	396	1.15	0.86 geom	~64	
Enceladus	$1.08 \cdot 10^{20}$	504	1.61	0.99 Bond	75 (ave)	trace H_2O, N_2, CO_2
Tethys	$6.17 \cdot 10^{20}$	1,062	0.98	0.80 Bond	86	
Dione	$1.10 \cdot 10^{21}$	1,123	1.48	0.99 geom	87	
Rhea	$2.31 \cdot 10^{21}$	1,527	1.24	0.95 geom	53 – 99	
Titan	$1.345 \cdot 10^{23}$	5,150	1.88	0.2 geom	93.7	N_2, CH_4, H_2
Iapetus	$6.5xx \cdot 10^{19}$	1,470	1.09	~0.6 geom	90 – 130	
2060 Chiron	?	~166 km	?	~0.15 geom	~75	
Uranus	$8.68 \cdot 10^{25}$	50,724	1.27	0.30 Bond	76 K @ 1 bar	H_2, He, CH_4
Miranda	$6.59 \cdot 10^{19}$	471	1.20	0.32 geom	~60	
Ariel	$1.35 \cdot 10^{21}$	1,158	1.59	0.23 Bond	~60	
Umbriel	$1.17 \cdot 10^{21}$	1,169	1.39	0.10 Bond	~75	
Titania	$3.53 \cdot 10^{21}$	1,577	1.71	0.17 Bond	70	
Oberon	$3.01 \cdot 10^{21}$	1,523	1.63	0.14 Bond	70-80	~0 atm
5145 Pholus	?	185	?	0.046	~62	red
Neptune	$1.02 \cdot 10^{26}$	49,244	1.64	0.29 Bond	72 K @ 1 bar	H_2, He, CH_4
Proteus	$4.4 \cdot 10^{19}$	~420	~1.3	0.096 geom	~51	
Triton	$2.14 \cdot 10^{22}$	2,706	2.06	0.719 geom	38	N_2
Pluto	$1.303 \cdot 10^{22}$	2,377	1.86	0.49 – 0.66 geo	33 – 55	N_2, CH_4, CO
Charon	$1.586 \cdot 10^{21}$	1,212	1.66	0.37 geom	53	
Haumea	$4.0 \cdot 10^{21}$	~1,400	2.6	~0.8	< 50	neutral
Makemake	$<4.4 \cdot 10^{21}$	~1,470	?	0.81	~38	reddish
Eris	$1.66 \cdot 10^{22}$	2326	2.52	0.96	~ 42-55	reddish
Sedna	?	~1,000	?	0.32 geom	~12	red

Table 9.1: Bulk properties of giant planets

	Jupiter	Saturn	Uranus	Neptune
Mass (Earth masses)	318	95	14.5	17.1
Average radius (Earth radii)	11.0	9.1	4.0	3.9
Flattening ($1 - R_{polar}/R_{equator}$)	0.065	0.098	0.023	0.017
Moment of inertia factor	0.254	0.210	0.225	~0.25
Density (g/cm^3)	1.33	0.69	1.27	1.64
Rotation period (hours)	9.925	10.57	-17.23	16.10

Table 5.1: Densities and magnetic fields of selected terrestrial solar system objects

object	**average density (g/cm³)**	**surface magnetic field (μT)**	**field source / comments**	**interior liquid layer?**
Mercury	5.43	0.25	dynamo?	partially molten core?
Venus	5.24	$\sim 5 \cdot 10^{-4}$	induced by solar wind	Fe-Ni core?
Earth	5.51	31	dynamo	Fe-Ni outer core
Moon	3.35	~0.03	localized crustal field	thin outer core
Mars	3.93	$\sim 10^{-3}$	loc. crustal field + solar wind	Fe/FeS core?
Io	3.53	~1.3	interacts with Jupiter's field	thin outer mantle shell
Europa	3.01	~0.2	interacts with Jupiter's field	ocean
Ganymede	1.94	~0.75	intrinsic; dynamo?	ocean; possibly two
Callisto	1.83	~0.04		ocean? not completely differentiated
Titan	1.88	~0	interacts with Saturn's field	ocean
Enceladus	1.61	~0	interacts with Saturn's field	ocean
Pluto	1.86	no?		ocean?

Models suggest subsurface oceans are possible on Rhea, Titania & Oberon, Triton, Orcus (a plutino), Eris, Sedna (TNO; very long eccentric orbit)

Table 9.3: Magnetic fields of giant (and comparison) planets

	Surface field strength	Magnetic moment	
	μT	T·m³	relative to Earth
Jupiter	428	$1.6 \cdot 10^{20}$	20,000
Saturn	22	$4.8 \cdot 10^{18}$	600
Uranus	23	$3.8 \cdot 10^{17}$	50
Neptune	14	$2.2 \cdot 10^{17}$	25
Earth	31	$7.9 \cdot 10^{15}$	1
Ganymede	0.72	$1.3 \cdot 10^{13}$	$1.7 \cdot 10^{-3}$
Mercury	0.3	$2.8 \cdot 10^{12}$	$3.5 \cdot 10^{-4}$

Table 8.1: properties substantial atmospheres of terrestrial objects

	Venus	Mars	Earth	Titan
N_2	0.035	0.019	**0.78**	**0.98**
O_2	< 20 ppm*	0.0015	**0.21**	
O_3		0.01 ppm	10 ppm	
Ar	70 ppm	0.019	0.0093	
H_2O	~30 ppm	< 100 ppm	< 0.05	
CO_2	**0.96**	**0.96**	400 ppm	
CO	~25 ppm	< 0.001	0.2 ppm	
CH_4			1.8 ppm	0.14
SO_2	20 – 200 ppm		trace (& trace N_2O)	traces H_2 and various hydrocarbons
H_2S	1 – 2 ppm			
H_2SO_4	4 – 10 ppm, clouds			
Ne	7 ppm	2.5 ppm	18 ppm	
He	12 ppm		5 ppm	
surface pressure	9200 kPa	0.6 kPa	101 kPa	147 kPa

*Parts per million by volume

Table 8.2: properties of tenuous atmospheres of terrestrial objects

Object	principal gases	surface pressure
Triton	N_2; CO & CH_4 ~few 10^{-3} N_2; Ar, Ne?	~1.6 Pa
Pluto	N_2; CO & CH_4	~0.3 – 1 Pa
Io	SO_2; traces of SO, NaCl, S, O	~10^{-4} Pa
Ganymede	O, O_2, H	~10^{-6} Pa
Europa	O_2	~10^{-7} Pa
Rhea	O_2, CO_2	~10^{-7} Pa
Dione	O_2	~10^{-8} Pa
Mercury	Na, Mg, O_2, S, H_2S, Ca, K, H_2O, He, H	~10^{-9} Pa
Moon	Ar, He, Ne, Na, K	~10^{-9} Pa

Any moon with pole caps, even very small moons, will have had some molecules of ices spending some amount of time hopping from warmer subsolar latitudes to the poles.

Table 9.2: Atmospheric properties of giant planets

	Jupiter	Saturn	Uranus	Neptune
H_2	0.864	0.963	0.85	0.85
He	0.136	0.033	0.13	0.13
H_2O	$2.3 \cdot 10^{-3}$	$\sim 1.6 \cdot 10^{-3}$	$\sim 1.4 \cdot 10^{-3}$	$\sim 1.4 \cdot 10^{-3}$
CH_4	$1.8 \cdot 10^{-3}$	$4.3 \cdot 10^{-3}$	0.020	0.030
NH_3	$2.3 \cdot 10^{-4}$	$4.8 \cdot 10^{-4}$	$< 1.9 \cdot 10^{-4}$	$< 1.9 \cdot 10^{-4}$
H_2S	$1.9 \cdot 10^{-4}$	$3.8 \cdot 10^{-4}$	$\sim 3 \cdot 10^{-4}$	$\sim 8 \cdot 10^{-4}$
Ne	$2.0 \cdot 10^{-5}$			
Ar	$1.3 \cdot 10^{-5}$			
C_2H_6	$\sim 3 \cdot 10^{-6}$	$\sim 3 \cdot 10^{-6}$	$<1 \cdot 10^{-8}$	$1.7 \cdot 10^{-6}$
Traces	other hydrocarbons, CO	→	→	→
	PH_3, GeH_4	→	HCN	→

Table 13.1: selected properties of the Sun

Mass	$1.99 \cdot 10^{30}$ kg
Radius	$6.96 \cdot 10^{5}$ km
Luminosity	$3.828 \cdot 10^{26}$ J/s
Average density	1.41 g/cm^3
Temperature — Core	$15.7 \cdot 10^{6}$ K
Temperature — Photosphere	5,778 K ($T_{effective}$)
Temperature — Corona	range; several million K
Rotation period	~25 days near equator; ~35 days near poles
Magnetic field	~1-2·10^{-4} T globally; ~0.3 T in sunspots
absolute magnitude	$M_V = 4.83$
color index	B−V = 0.62
spectral type	G2V
metallicity	$Z = 0.0122$

Table 14.1: some of the principal characteristics of the spectral types.

O	blue	T_{eff} >30,000 K	He II; multiply ionized metals; some lines in emission
B	blue-white	T_{eff}: 10,000 - 30,000 K	He I, Balmers increasing
A	blue-white - white	T_{eff}: 7,500 - 10,000 K	Balmer lines; ionized metals; Ca II strengthening
F	white - yellow-white	T_{eff}: 6,000 - 7,500 K	Balmer lines ↓; Ca II ↑; neutral metals increasing
G	yellow-white - yellow	T_{eff}: 5,200 - 6,000 K	Balmers weak; Ca II max; neutral metals ↑; CH
K	yellow - orange	T_{eff}: 3,700 - 5,200 K	Balmers very weak; Ca II; neutral metals strong; TiO
M	orange - red	T_{eff}: 2,400 - 3,700 K	Ca II ↓; neutral metals strong; molecular bands

WR	Wolf-Rayet stars; no hydrogen lines; emission lines of helium and N &/or C, sometimes O
L	mostly brown dwarfs; some very low-mass stars; some very cool supergiants
T	infrared brown dwarfs, T_{eff} ~ 700 - 1,300 K; methane present in spectra
Y	recently created classification for very cool brown dwarfs; possibly NH_3, H_2O present in spectra
C	Carbon stars; most are CR, CN giants similar to G/K and K/M stars but with added carbon
S	ZrO in spectra; carbon intermediate between carbon stars and normal M stars
wd or D	white dwarfs: degenerate remnants of solar-type stars; broad lines

Table 14.2: approximate properties of Population I main sequence (luminosity class V) stars

	T_{eff}	B−V	M_V	B.C.*	R / R$_\odot$	M / M$_\odot$
O2	48,000	−1.0	−6.1	−4.7	15	100
O5	42,000	−0.33	−5.7	−4.40	12	60
B0	30,000	−0.3	−4.0	−3.16	7.4	17.5
B5	15,200	−0.17	−1.2	−1.46	3.9	5.9
B8	11,400	−0.11	−0.25	−0.80	3.0	3.8
A0	9,790	−0.02	0.65	−0.30	2.4	2.9
A5	8,180	0.15	2.0	−0.15	1.7	2.0
F0	7,300	0.30	2.7	−0.09	1.5	1.6
F5	6,650	0.44	3.5	−0.14	1.3	1.4
G0	5,940	0.58	4.4	−0.18	1.1	1.05
G5	5,560	0.68	5.1	−0.21	0.92	0.92
K0	5,150	0.81	5.9	−0.31	0.85	0.79
K5	4,410	1.15	7.4	−0.72	0.72	0.67

M0	3,840	1.40	8.8	−1.38	0.60	0.51
M5	3,000	1.64	12.3	−2.73	0.2	0.15
M8	2,400	2.12	18.7	−4.1	0.10	0.08

*B.C. = bolometric correction

Table 14.3: roughly, approximate properties of Population I supergiants (luminosity class I)

	T_{eff}	B−V	M_V	B.C.	$R / R_\odot$
O9	32,000	−0.27	−6.5	−3.2	25
B2	17,600	−0.17	−6.4	−1.6	40
B5	13,600	−0.10	−6.2	−0.95	50
A0	9,980	−0.01	−6.3	−0.4	60
A5	8,610	0.09	−6.6	−0.1	65
F0	7,460	0.17	−6.6	−0.01	80
F5	6,370	0.32	−6.6	−0.03	100
G0	5,370	0.76	−6.4	−0.15	120
G5	4,930	1.02	−6.2	−0.3	150
K0	4,550	1.25	−6.0	−0.5	200
K5	3,990	1.60	−5.8	−1.0	400
M0	3,620	1.67	−5.6	−1.3	500
M5	2,880	1.80	−5.6	−3.5	800

Table 14.4: properties of a few interesting and/or well-known stars.

	RA (2000)			Dec (2000)		m_B	m_V	B-V	parallax	μ RA	μ Dec	v_{radial}	Spt& LC	notes
	h	m	s	°	′				mas	mas	mas	km/s		
α Cen A	14	39	36.5	-60	50.0	0.72	0.01	0.71	754.81	-3679	474	-21.4	G2V	
α Cen B	14	39	35.1	-60	50.3	2.21	1.33	0.88	796.92	-3614	803	-20.7	K1V	
α Cen C	14	29	42.9	-62	40.8	12.95	11.13	1.82	769.8	-3776	766	-22.4	M5.5Ve	+ planet
Albireo (β Cyg) A	19	30	43.3	27	57.6	4.17	3.09	1.08	7.51	-7.2	-6.2	-24.07	K3II+B9.5 V	
Albireo (βCyg) B	19	30	45.4	27	57.9	5.01	5.11	-0.1	8.38	-0.99	-0.5	-18.80	B8Ve	
Aldebaran (α Tau)	4	35	55.2	16	30.6	2.4	0.86	1.54	48.94	63.5	-189	54.26	K5III	
Algol (β Per)	3	8	10.1	40	57.3	2.07	2.12	-0.05	36.27	2.99	-1.7	4.0	B8V	eclipsing binary
Altair (αAql)	19	50	47	8	52.1	0.98	0.76	0.22	194.95	536	385	-26.6	A7Vn	
Antares (α Sco)	16	9	24.5	-26	25.9	2.75	0.91	1.84	5.89	-12	-23	-3.5	M0.5Iab+ B3V	
Arcturus (α Boo)	14	15	39.7	19	10.9	1.18	-0.05	1.23	88.83	-1093	-2000	-5.19	K1.5III	
Barnard's	17	57	48.5	4	41.6	11.24	9.51	1.73	547.5	-803	10362.54	-110.51	M4V	BY Dra var

Betelgeuse (α Ori)	5	55	10.3	7	24.4	2.27	0.42	1.85	6.55	27.5	11	21.91	M1-2Ia-Iab	
Canopus (α Car)	6	23	57.1	-52	41.7	-0.59	-0.74	0.15	10.55	19.9	23.2	20.3	A9II	
Capella (α Aur)	5	16	41.4	45	59.9	0.88	0.08	0.8	76.2	75.3	-427	29.19	K0+G1III	spectroscopic bin
Castor (α Gem) Aab	7	34	35.9	31	53.3	1.62	1.93	-0.31	64.12	-206.3	-148	6	A1.5IV+dM1e	spectroscopic bin
Castor (α Gem) Bab	7	34	36.1	31	53.3	1.62	2.97	-1.35	64.12	-206.3	-148	-1.2	A1IV+dM1e	spectroscopic bin
Castor (α Gem) Cab	7	34	37.6	31	52.2	10.56	9.27	1.29	64.12	-207.6	-96	2.5	2(M0.5Ve)	BY Dra &bin
τ Ceti	1	44	4.1	-15	56.2	4.22	3.5	0.72	273.96	-1721	854	-16.68	G8V	multiple planets; debris disk
61 Cygni A	21	6	53.9	38	45.0	6.39	5.21	1.18	285.95	416	32	-65.74	K5V	BY Dra var
61 Cygni B	21	6	55.3	38	44.5	7.4	6.03	1.37	286.15	4106	3156	-64.07	K7V	
Deneb (α Cygni)	20	41	25.9	45	16.8	1.34	1.25	0.09	2.31	2.0	1.9	-4.9	A2Ia	
ε Eri	3	32	55.8	-9	27.5	4.61	3.73	0.88	310.9	-975.2	19.5	16.43	K2 V	BY Dra var; + planet
Fomalhaut (α PsA) A	22	57	39	-29	37.3	1.25	1.16	0.09	129.8	329	-165	6.5	A4V	+planet; debris disk; angular size 0.212 ′
Fomalhaut B (TW PsA)	22	56	24.1	-31	33.9	7.58	6.48	1.1	131.4	330	-158	7.2	K4Ve	BY Dra var
Fomalhaut C	22	48	4.5	-24	22.1	14.3	12.624	1.676	130.3	332	-184	6.5	M4.0Ve	
ε Indi	22	3	21.7	-56	47.2	5.75	4.69	1.06	274.8	3967	-2536	-40	K5V	
Luten 726-8 A (BL Cet)	1	39	1.5	-17	57.0		12.7		374	3296	563	29	M5.5V	flare
Luten 726-8 B (UV Cet)	1	39	1.5	-17	57.0		13.2		374	3296	563	29	M6V	flare
Mizar (ζ 1 UMa) A	13	23	55.5	54	55.5	2.29	2.23	0.06	39.4	121	-22	-5.6	A1.5V	spectroscopic bin
Mizar (ζ 2 UMa) B	13	23	56.3	54	55.3	4.05	3.88	0.17	40.5	114	-26.5	-9.3	A1+A7IV-V	spectroscopic bin
Alcor (80 UMa)	13	25	13.5	54	59.3	4.18	4.01	0.17	39.9	113	-28.6	-8.9	A5+M3-4 V	binary
Polaris (α UMi) Aa	2	31	49.1	89	15.9	2.62	2.02	0.6	7.54	44.5	-11.9	-16.4	F8 Ib	Cepheid
Polaris (α UMi) Ab							9.2						F6V	
Polaris (α UMi) B	2	30	33.5	89	15.6	8.69	8.2	0.49				-8	F3V	
Pollux (β Gem)	7	45	18.95	28	1.6	2.14	1.14	1.0	94.54	-627	-45.8	3.23	K0IIIb	+ planet
Procyon (α CMi) A	7	39	18.1	5	13.5	0.79	0.37	0.4	284.6	-717	-1035	-3.2	F5 IV-V	
Procyon (αCMi) B	7	39	17.9	5	3.4	10.7	10.92	-0.2		-709	-1024		DQZ	
R136a1	5	38	42.4	-69	6.0	12.78	12.77	0.01	0.02				WN5h	LMC
Regulus (α Leo) A	10	8	22.3	11	58.0	1.24	1.4	-0.2	41.13	-249	5.6	5.9	B8IVn	
Regulus (α Leo) B/C	10	8	12.8	11	59.8	8.99	8.13	0.9	41.21	-254	8.0	6.72	K0Ve (+M4V?)	binary
Rigel (βOri) A	5	14	32.3	-8	12.1	0.1	0.13	-0.03	3.78	1.3	0.5	17.8	B8Iae	
Rigel (βOri) Bab	5	14	32	-8	12.2	10.4	10.4	0.00				19.1	B9+B9	spectroscopic bin
Ross 128	11	47	44.4	0	48.3	12.905	11.153	1.75	295.8	607	-1223	-31.2	M4V	flare; +planet
Sirius (α CMa) A	6	45	8.9	-16	43.0	-1.09	-1.09	0.00	379.2	-546	-1223	-5.5	A1V	spectroscopic bin
Sirius (α CMa) B	6	45	9	-16	43.1	8.41	8.44	-0.03		-547	-1207		DA1.9	
Spica (α Vir)	13	25	11.6	-11	9.7	0.74	0.97	-0.23	13.06	-42	-30.7	1	B1V	
Vega (αLyr)	18	36	56.3	38	47.0	0.03	0.03	0.00	130.23	201	286	-20.6	A0V	
WISE 0855-0714	8	55	10.8	-7	14.7				448	-4800	500		Y2	$m_J = 25$

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