Appendices

Abbreviations

In addition to the abbreviations for chemical elements, SI units and multiples, which are given in Appendices 9 and 2–4, many abbreviations are commonly used in astronomy and in this book. These are given below.

A	atomic mass number	m_{vis}	visual magnitude	snu	solar neutrino unit
Å	Angstrom unit	M	absolute magnitude	S	flux density
au	astronomical unit	m_v, M_v, etc	magnitude through	t, T	time
c	velocity of light		filters	T	temperature
d	day	m, M, M	mass	T_{eff}	effective temperature
d, D	distance	$M_\odot$	solar mass	UV	ultraviolet
e	eccentricity	n	neutron	v	velocity
e-	electron	N	number	V	volume
e+	positron	p	proton	V	potential energy
eV	electron volt	P	pressure	XUV	extreme ultraviolet
E	energy	P_{rad}	radiation pressure	z	redshift
G	gravitational constant	pc	parsec	γ	photon
H_0	Hubble's constant	PSR	pulsar	$\delta\lambda$	wavelength change
i	inclination	q	perihelion distance	θ	angle
IR	infrared	QSO	quasi-stellar object (quasar)	λ	wavelength
L	luminosity	QSS	quasi-stellar source	λ_0	rest wavelength
$L_\odot$	solar luminosity	R	gas constant	v	neutrino
m	apparent magnitude	R	radius	ω	angle of perihelion
m_{pe}	photoelectric magnitude	R	Zurich sunspot number	Ω	angle of ascending node
m_{pg}	photographic magnitude	$R_\odot$	solar radius	[]	'forbidden' transitions

Some Derived SI Units with Special Names

Physical quantity	SI unit	Symbol
frequency	hertz	Hz
energy	joule	J
force	newton	N
power	watt	W
electric charge	coulomb	C
potential difference	volt	V
resistance	ohm	Ω
capacitance	farad	F
magnetic flux	weber	Wb
inductance	henry	H
magnetic flux density	tesla	T
luminous flux	lumen	lm
illumination	lux	lx

Greek alphabet

upper case	lower case	name	upper case	lower case	name
A	α	alpha	N	ν	nu
B	β	beta	Ξ	ξ	xi
Γ	γ	gamma	O	o	omicron
Δ	δ	delta	Π	π	pi
E	ε	epsilon	P	ϱ	rho
Z	ζ	zeta	Σ	σ	sigma
H	η	eta	T	τ	tau
Θ	θ	theta	Y	υ	upsilon
I	ι	iota	Φ	φ	phi
K	$\varkappa$	kappa	X	χ	chi
Λ	λ	lambda	Ψ	ψ	psi
M	μ	mu	Ω	ω	omega

Some other units used in astronomy

Length

1 micron (μm) = 10^{-6}m

1 Angstrom (Å or A) = 10^{-10}m

= 10^{-8}cm

1 au = 1.4960×10^8 km

= 9.2956×10^7 miles

= 4.8481×10^{-6}pc

= 1.5813×10^{-5} light years

1 pc = 3.0856×10^{13} km

= 1.92×10^{13} miles

= 3.2616 light years

= 2.0626×10^5 au

1 light year = 9.4605×10^{12}km

= 5.88×10^{12} miles

= 6.324×10^4au

= 0.3066 pc

Mass and radii

1 solar radius ($R_\odot$) = 6.96×10^5 km

= 4.325×10^5 miles

1 solar mass ($M_\odot$) = 1.99×10^{30}kg

1 Earth radius = 6.378×10^3 km

= 3.963×10^3 miles

1 Earth mass = 5.977×10^{24} kg

Time

1 tropical year	= 365·2422 mean solar days
1 sidereal year	= 365·2564 mean solar days
1 sidereal day	= $23_h56_m4\cdot1_s$

Energy

1 joule (J) = 10^7 ergs

1 electron volt (eV) = 1.60207×10^{-19}J

Conversion factors

1 cm = 0·3937 inch	1 inch = 25·4 mm
1 m = 1·0936 yard	= 2·54 cm
1 km = 0·6214 mile	1 foot = 0·3048 m
1 kg = 2·2046 pound	1 yard = 0·9144 m
1 gm = 0·0353 ounce	1 mile = 1·6093 km
	1 pound = 0·4536 kg