Ch. 1: Introduction

Pg. 12, Section 1.8, Col.2, last line: 'Z' should be 'Z+1'.

Ch. 2: Atomic Structure

Pg.27, Section 2.8 Hund's Rules, Para 2, line 2 should read: ".....They may NOT apply to excited.....". The word 'not' is missing.

Pg. 37, Section 2.13 Relativistic fine structure, Eq. (2.135), in the denominator change: '1' $\to'$ ℓ'.

Pg. 40, end of Section 2.13.2 Dirac equation, last equation for H_{nl}^{so}, delete one of the factors Z^4.

Pg. 41, Col. 2, after (2.179): Delete comma from "On the other hand..."

Ch.3: Atomic Processes

Pg.59, left column, §3.5 R-mateix method, the phrase in the middle of the paragraph should read "......(particularly exchange)..." , (not 'exchanges'). The electron-ion exchange interaction is sufficiently weak in the outer region to be neglected.

Pg. 63, last line: delete 'above'.

Ch. 5: Electron-ion collisions

Pg.105, Footnote 4, line 2: Eq. 2.113 should read Eq. 2.115.

Ch. 6: Photoionization

Pg. 122, insert following paragraph at the end of §6.2 Photoionization cross section.

"In Eq. (6.11) for transition matrix elements T_{ij} we retain the designation of initial and final states as i and j to be consistent with Chapter 4 on raditive transitions where they are both bound states. However, for photoionization the eigenket $|j>$ is an oscillating wave with energy ϵ, such as those for a Coulomb potential Eqs. 3.35-3.37. The corresponding radial function is designated as $R_{\epsilon\ell_j}(r)$, valid for a central potential discussed later in §6.4."

Pgs. 122-124, Replace subscript n_j with ϵ in the equations in §6.3, 6.4, i.e. $R_{n_j,\ell_j}(r) \to R_{\epsilon,\ell_j}(r)$.

Pg. 130, Fig. 6.5: The units on the abscissa "Photon energy (Ry)" include the ionization energy of the ground state of O I (^3P), which is $\sim$1 Ry and corresponds to the ground state of O II ($^4S^o$) set at the origin.

Ch. 8: Multi-wavelength emission spectra

Pg. 193, Col.2, line 1: 157 $\mathring{A}$ should be 157 μm.

Ch. 9: Absorption lines and radiative transfer

Pg. 197, Eq. (9.20) should be: $\int_{-\infty}^{+\infty} I(\omega)d\omega = 1$.

Pg.198 - Section 9.2.2 *Doppler Broadening*, Eq. (9.32): change $v \to v_0$, i.e.

$$\Delta\nu_D \equiv \left(\frac{v_0}{c}\right) \nu_o, \qquad (9.32)$$

where v_0 is defined in (9.29) as the averaged kinetic velocity of particles wtih mass M at temperature T.

Pg. 199, line before Eq. (9.35): Delete 'y = $\Delta\nu/\Delta\nu_D$'; 'y' is simply the variable of the integrand in Eq.

(9.36).

Pg. 205, Col. 2, Eq. (9.76) second line: Delete 'X'. It is redundant since the symbol $\otimes$ already denotes additive/multiplicative properties of the different components of line broadening.

Pg. 216, left column, §9.5.1, paragraph 1, line 7 should have "...exp(-ϵ/kT)...".

Ch. 10: Stellar structure and evolution

Pg. 226, right column, paragraph 1, lines 7 and 9 from bottom: $...cm^{-13}... \rightarrow ...cm^{-3}...$.

Pg. 230, left column, §10.6.7, para 2, lines 5, 11; right column, para 4, line 3: Chandrasekhar limit should be 1.44 $M_\odot$.

Pg. 237, left column, line 2: ...(Eq. 1.7)... $\rightarrow$ ...(Eq. 1.8)....

Ch. 11: Opacity and Radiative Forces

Pg. 247, left column, Eq (11.34): 'bb' should be 'bf'.

Ch. 12: Gaseous Nebulae and H II Regions

Pg. 257 - Col. 1, line 2 from bottom: 'nebula' should be 'nebulae'

Pg. 265 - §12.4.3 *Collisional excitation and photoionization rates*, paragraph following Eq. (12.24), line 4 should read

"......excitation rate (cm^{-3} s^{-1}) = q(cm^3 s^{-1}) $\times n_e$ (cm^{-3}) $\times n_{ion}$ (cm^{-3})."......

Note that the rate is defined in units of per unit volume per second (cm^{-3} s^{-1}).

Ch. 13: Active Galactic Nuclei and Qusars

Pg. 282, Table 13.1, line with 'Hβ', last column should be $2s, 2p - 4s, 4p, 4d$.

Pg. 282, Table 13.1, line with '[Fe xiv]', last column: right) missing — should be $3s^2 3p$ ($^2P^o_{1/2} -^2 P^o_{3/2}$).

Pg. 288, Col. 1, para 1, last line: should read "...more than that from a supernova."

Pg. 289, Fig. 13.5 caption, line 2: "galactice" $\rightarrow$ "galactic"

Pg. 188, Eq. (8.40), denominator inside the integral: $j\nu \rightarrow h\nu$

Ch. 14: Cosmology

Pg. 305, Col. 2, line 6 from bottom: "Compton" $\rightarrow$ "inverse Compton"

Pg. 306, Col. 2, Eq. (14.2) should be:

$$z \equiv \frac{\lambda(obs) - \lambda(rest)}{\lambda(rest)}$$

Pg. 308, Col. 1, para 2, line 3 from bottom: "el" $\rightarrow \ell$

Pg. 314, Col. 2, para 2, line 3: 1/137036 $\rightarrow$ 1/137.036

Pg. 315, Footnote 7, line 4: should read "....or smilarly 3p $\rightarrow$ 3s doublets,..."

Pg. 320, Col. 1, para 1, line 4: 'former' should be 'latter'; should read "whereas the latter (curve(c)) do not show..."

Index

Pg. 363: "Sunayer-Zeldovich" → "Sunyaev-Zeldovich" and Pg. 105→ 305.

Appendix B

Pg. 327: Add after 'Rydberg energy','1 Rydberg = $3.2898419499 \times 10^{15}$ hz'