ASTROPHYSICS LITERATURE

Prof. Avishai Dekel

General Astrophysics and Astrophysical Processes

1. Spitzer (Wiley 1978); Physical Processes in the Interstellar Medium (classic, technical)
2. Rybicki & Lightman (Wiley 1979); Radiative Processes in Astrophysics (classic, technical)
3. Bowers and Deeming; Astrophysics I and II. (Basic text book, high-undergraduate level)
4. Shu (University Science Books 1991/92); The Physics of Astrophysics - I. Radiation, II. Gas Dynamics. (Technical, graduate level)
5. Carroll & Ostlie (Addison Wesley 1995); Modern Astrophysics (comprehensive text, high undergraduate level)
6. Padmanabhan (Cambridge U Press 2000): Theoretical Astrophysics - I. Astrophysical Processes, II. Stars and Stellar Systems (graduate-level textbook)

Galaxies

1. Binney and Merrifield (Princeton U Press 1998); Galactic Astronomy [not very technical, high-undergraduate and graduate].
2. Padmanabhan (Cambridge U Press 2002): Theoretical Astrophysics III: Galaxies and Cosmology [graduate-level textbook]
3. * Sparke and Gallagher (Cambridge UP 2007); Galaxies in the Universe - an Introduction [undergrad-level textbook]
4. ** Binney and Tremaine (Princeton U Press 2008); Galactic Dynamics [technical, graduate, excellent].
5. ** Mo, van den Bosch and White (Cambridge UP 2010); Galaxy Formation and Evolution [graduate-level textbook]

Cosmology

Popular and Nontechnical:

1. Weinberg; The First Three Minutes [an old classic popular]
2. Hawking; A Brief History of Time [over-rated popular]
3. Harrison; Cosmology [non-technical but comprehensive introduction]
4. Silk; The Big Bang (Freeman 1989) [non-technical main part, with mathematical notes at the end, includes formation of structure]
5. Hogan; The Little Book of the Big Bang (Copernicus, Springer-Verlag 1998) [popular, modern]
6. Coles; Critical Dictionary of the New Cosmology (Routledge 1999) [quick reference to basic concepts]
7. Goldsmith; The Runaway Universe (Perseus Books 2000) [popular, modern]

8. Livio; The Accelerating Universe (Wiley 2000) [popular, modern]

Technical:

3. Misner, Thorne and Wheeler; Gravitation [General Relativity text which includes cosmology, technical graduate level, old]
5. Kolb and Turner; The Early Universe [technical, graduate]
7. ** Padmanabhan (Cambridge U Press 1993); Structure Formation in the Universe [graduate, technical, basic text, pedagogical and organized]
10. ** Peacock (Cambridge U Press 1999); Cosmological Physics [high-undergraduate and graduate, technical, basic text]
11. Dekel & Ostriker (Cambridge U Press 1999); Formation of Structure in the Universe [technical, graduate, useful chapters on specific modern topics]
13. * Padmanabhan (Cambridge U Press 2002); Theoretical Astrophysics III: Galaxies and Cosmology [graduate-level textbook]
14. Hartle (Addison Wesley 2003); Gravity [General Relativity text book, including introduction to cosmology, graduate level]
15. Doddleson (Academic Press); Modern Cosmology [graduate-level textbook, CMB, generation of fluctuations]
16. ** Ryden (Addison Wesley 2003); Introduction to Cosmology [senior+ level, excellent]
17. Naselsky, Novikov & Novikov (Cambridge UP 2006); The Physics of the Cosmic Microwave Background
18. ** Weinberg (Oxford UP 2008); Cosmology [graduate-level textbook]