

Thermodynamics: Further Reading

We covered the subject to the extent that you should be able to read the remaining topics in thermodynamics without reading from the beginning of the standard textbooks

- C.B.F. Finn, *Thermal Physics* [latest edition becomes A. Rex, *Finn's Thermal Physics*]
- C.J. Adkins, *Equilibrium Thermodynamics*
- A.B. Pippard, *The Elements of Classical Thermodynamics* [this is a classic that influenced Finn, Adkins, and Blundell and Blundell]
- Fermi, *Thermodynamics* [this is another classic, Fermi gave a short, concise, and masterful discussion]
- P.M. Morse, *Thermal Physics* [another classic by a MIT professor, the book covers thermodynamics, kinetic theory of gases, and statistical mechanics]

Newer books

- S.J. Blundell and K.M. Blundell, *Concepts in Thermal Physics* [more modern discussion on thermodynamics and statistical mechanics, with topics covered in short chapters. Good for picking up a necessary topic by reading 10 pages, given that you have the background to cut into any chapter of the book.]

- R. Baierlein, *Thermal Physics* [the book integrated statistical physics approach and thermodynamics from the earlier chapters, it will be good reading after you have both thermodynamics and statistical mechanics]
- C. Kittel and H. Kroemer, *Thermal Physics* [a very popular textbook until Blundell and Blundell appeared]

Specific Applications

- Chemistry [Thermodynamics and Statistical Mechanics are two big parts of Physical Chemistry, it is also a good place to pick up real applications of thermodynamics]
 - I.N. Levine, *Physical Chemistry* [the first 16 chapters cover many chemistry applications of thermodynamics]
 - D.W. Ball, *Physical Chemistry* [first 8 chapters (250 pages) cover thermodynamics, you have the background of 5 chapters (about 150 pages). You are encouraged to read the chapters on chemical equilibrium, multiple-component (2 or more species) systems, electrochemistry and ionic solutions as a test on the way to learn, i.e., independent learning after acquiring the essential background of a subject]
 - D.A. McQuarrie and J.D. Simon, *Physical Chemistry: A Molecular Approach* [an exceptional book not only in applications, but also in its crystal-clear discussions on

quantum mechanics (quantum chemistry), thermodynamics, and statistical mechanics. It is a good book to learn these subjects even for physics students.]

- A.M. Whiteman, *Thermodynamics: Basic Principles and Engineering Applications* [you are 75% done, the book gives more discussions on various power cycles and flow problems]
- R. Hentschke, *Thermodynamics for Physicists, Chemists and Materials Scientists* [a good place to read a simple introduction with applications, it also covers simulation techniques]

PHYS 5130 [7 Oct 2020]