

Physics 704 Spring 2011 REFERENCES

Course Text: M. Plischke and B. Bergerson, *Equilibrium Statistical Physics*, 3rd ed., World Scientific, 2006; pb [9812561552]

Strongly Recommended:

Paul M. Chaikin and T. C. Lubensky, *Principles of Condensed Matter Physics*, Cambridge, 2000; pb [0521794501], used as text in 2002.

L. P. Kadanoff, *Statistical Physics: Statics, Dynamics and Renormalization*, World Scientific, 2000; pb [9810237642].

Mehran Kardar, *Statistical Physics of Fields*, Cambridge, 2007 [978-0-521-87341-3].

Mehran Kardar, *Statistical Physics of Particles*, Cambridge, 2007 [978-0521873413].

Michel Le Bellac, Fabrice Mortessagne, and G. George Batrouni, *Equilibrium and Non-Equilibrium Statistical Thermodynamics*, Cambridge, 2004; [0521821436]; used as text in 2006.

Linda E. Reichl, *A Modern Course in Statistical Physics*, 3rd ed., Wiley 2009 pb [3527407820]; 2nd ed., Wiley, 1998 [0471595209].

J.M. Thijssen, *Computational Physics*, Cambridge, 1999; pb [052157588]: lots of physics, presented in a format useful for computations, but over 1/3 on electronic aspects.

N.G. van Kampen, *Stochastic Processes in Physics and Chemistry*, 3rd ed., North Holland, 200-7; pb [978-0444529657].

Outstanding series: Phase Transitions and Critical Phenomena, C. Domb & J.L. Lebowitz (formerly & M.S. Green), Academic; no longer pub.

Other Noteworthy Texts:

Radu Balescu, *Equilibrium and Nonequilibrium Statistical Mechanics*, Wiley, 1975; out of print [0471046000]; esp. chap. 11 on non-equilibrium.

K. Binder and D.W. Heermann, *Monte Carlo Simulation in Statistical Physics: An Introduction*, 3rd ed., Springer, 1997; pb [3540632654].

Herbert B. Callen, *Thermodynamics, Wiley, 1960; Thermodynamics and an Introduction to*

Thermostatistics, Wiley, 1985 [978-0471862567].

David Chandler, *Introduction to Modern Statistical Mechanics*, Oxford, 1987; pb [0195042778].

Brian Cowan, *Topics in Statistical Mechanics*, World Scientific, 2005; pb [978-1860945694].

J.R. Dorfman, *An Introduction to Chaos in Nonequilibrium Statistical Mechanics*, Cambridge, 1999; pb [0521655897].

R.P. Feynman, *Statistical Mechanics*, W.A. Benjamin, 1972; pb [0805325093].

C.W. Gardiner, *Handbook of Stochastic Methods*, 2nd ed., Springer, 1985, pb [3540616349].

Kerson Huang, *Statistical Mechanics*, 2nd ed., Wiley, 1987 [0471815187].

R. Kubo, M. Toda, and N. Hashitsume, *Statistical Physics II: Nonequilibrium Statistical Mechanics*, 2nd ed., Springer, 1991; pb [038753833X].

L.D. Landau, M.J. Kearsley, E.M. Lifshitz, *Statistical Physics: Part 1*, 3rd ed., Butterworth-Heinemann, 1980; pb [0750633727]; *Part 2*, Butterworth-Heinemann, 1995 [0750626384].

Shang-Keng Ma, *Statistical Mechanics*, World Scientific, 1985; pb [9971966077].

G. F. Mazenko, *Equilibrium Statistical Mechanics*, Wiley, 2000 [0471328391].

G. F. Mazenko, *Fluctuations, Order, and Defectss*, Wiley, 2002 [978-0471328407].

G. F. Mazenko, *Nonquilibrium Statistical Mechanics*, Wiley, 2006 bp [978-3527406487].

Hidetoshi Nishimori and Gerardo Ortiz, *Elements of Phase Transitions and Critical Phenomena*, Oxford UP, 2011 [9780199577224]

R.K. Pathria, *Statistical Mechanics*, 2nd ed., Butterworth-Heinemann, 1996; pb [0750624698].

J. S. Rowlinson and B. Widom, *Molecular Theory of Capillarity*, Dover, 2003 (reprint of 1988); pb [0486425444]

Silvio Salinas, *Introduction to Statistical Physics*, Springer, 2010 bp [978-1441928849], seemingly pb version of 2001 hardback

H. Eugene Stanley, *Introduction to Phase Transitions and Critical Phenomena*, Oxford, 1971, 1997; pb [0195053168].

J.M. Yeomans, *Statistical Mechanics of Phase Transitions*, Oxford, 1992; pb [0198517300].

Less Advanced Texts:

C. Garrod, *Statistical Mechanics and Thermodynamics*, Oxford, 1995 [019508523X].

W. Greiner and L. Neise, *Thermodynamics and Statistical Mechanics*, Springer, 1995; pb [0387942998].

Donald A. McQuarrie, *Statistical Mechanics*, Univ. Science Books, 2000 [1891389157].

Richard L. Rowley, *Statistical Mechanics for Thermophysical Property Calculations*, Prentice-Hall, 1994 [0130308188].

James P. Sethna, *Statistical Mechanics: Entropy, Order Parameters and Complexity*, Oxford, 2006; pb [978-0198566779].

<http://www.physics.cornell.edu/sethna/StatMech/EntropyOrderParametersComplexity.pdf>

Numerical Techniques, Crystal Growth

A.-L. Barabási and H.E. Stanley, *Fractal Concepts in Surface Growth*, Cambridge, 1995; pb [0521483182].

H. Gould, J. Tobochnik, and Wolfgang Christian, *An Introduction to Computer Simulation Methods: Applications to Physical Systems*, 3rd ed., Addison-Wesley, 2006; pb [978-0805377583].

Dieter W. Heermann, *Computer Simulation Methods in Theoretical Physics*, 2nd ed., Springer, 1990; pb [0387522107].

M.E.J. Newman and G.T. Barkema, *Monte Carlo Methods in Statistical Mechanics*, Oxford, 1999; pb [0198517971].

A. Pimpinelli and J. Villain, *Physics of Crystal Growth*, Cambridge, 1998; pb [0521558557].

D.C. Rapaport, *The Art of Molecular Dynamics Simulation*, Cambridge, 1997; pb [0521599423].

L. Ratke and P.W. Voorhees, *Growth and Coarsening*, Springer, 2002 [3-540-42563-2].

Other Special Topics

W.T. Coffey, Yu.P. Kalmykov, and J.T. Waldron, *The Langevin Equation*, 2nd ed., World Scientific, 2004 [978-9812384621].

Sidney Redner, *A Guide to First-Passage Processes*, Cambridge, 2007; pb [978-0521036917] bp version of 2001 hardback

Hannes Risken and Till Frank, *The Fokker-Planck Equation: Methods of Solutions and Applications*, 2nd ed., Springer, 1989 [978-3540615309].

Subir Sachdev, *Quantum Phase Transitions*, Cambridge, 2000.

David S. Sholl and Janice A. Steckel, *Density Functional Theory: A Practical Introduction*, Wiley, 2009 [978-0-470-37317-0].

Dietrich Stauffer and Amnon Aharony, *Introduction to Percolation Theory*, 2nd ed., Taylor & Francis, 1994, pb [978-0748402533].

R. Zallen, *The Physics of Amorphous Solids*, Wiley, 1983; pb [0471299413].

More Advanced Texts:

Radu Balescu, *Statistical Dynamics: Matter out of Equilibrium*, Imperial College Press, 1997; pb [1860940463] unavailable; [1860940455].

R.J. Baxter, *Exactly Solved Models in Statistical Mechanics*, Academic, 1982 [0120831805].

John Cardy, *Scaling and Renormalization in Statistical Physics*, Cambridge, 1996; pb [0521499593].

S.R. Degroot, P. Mazur, and S.R. De Groot, *Non-Equilibrium Thermodynamics*, Dover, 1984; pb [0486647412].

M.E. Fisher, in *Critical Phenomena*, H. Araki et al., eds., Springer, 1983 [0387126759].

Nigel Goldenfeld, *Lectures on Phase Transitions and the Renormalization Group*, Addison-Wesley, 1992; pb [0201554097].

P. Pfeuty and G. Toulouse, *Introduction to the Renormalization Group and to Critical Phenomena*, Wiley, 1977.

Extensive compilation of texts, including most of the above:

<http://stp.clarku.edu/books/>