

## Physics 683 (Basic Training in Condensed-Matter Physics): Books

Spring 2006

These books (unless noted) will be placed on reserve at Physical Sciences Library, during the period of the lecture module they belong to.

### Random Matrix Theory [Brouwer, 1/27-2/8]

M. L. Mehta, *Random Matrices (2nd ed.)*  
(Academic Press, 1991); QC174.5.M59 1991.

This is the grandfather text (original ed. 1967). The 3rd ed. is available in the Math library (not on reserve), QA188 .M44 2004

Lecture notes by Piet Brouwer (to be handed out).

### Quantum Hall Effect [Henley, 2/10-3/10]

“The Quantum Hall Effect: Novel Excitations and Broken Symmetries”, by Steven M. Girvin, in *Topological Aspects of Low Dimensional Systems*, ed. A. Comtet, T. Jolicoeur, S. Ouvry, and F. David.

(Springer-Verlag/Les Editions de Physique, 2000). [Lectures from the Les Houches summer school, 1998.] Book in Math Library, QC20.7.T65 E26x 1998 (not on reserve).

Article available online via [www.arxiv.org](http://www.arxiv.org), paper cond-mat/9907002, and will be handed out.

*The Quantum Hall Effect (2nd ed.)*, ed. Richard E. Prange and Steven M. Girvin,  
(Springer-Verlag, 1990); QC612.H3 Q1 1990.

A collection of review chapters on the basic phenomena of the integer and quantized Hall effects as discovered in the 1980s. (My lectures will mainly cover these basics.)

*Perspectives in Quantum Hall Effects* ed. Sankar Das Sarma and Aron Pinczuk,  
(John Wiley & Sons, 1997); QC612 H3 P46x 1997.

Another collection continuing Prange and Girvin, covering the elaborations developed in the 1990s.

Lecture notes by Chris Henley (to be handed out).

### From Glasses to Computational Complexity [Sethna, 3/29-4/7]

*Spin Glass Theory and Beyond*, by Marc Mézard, Giorgio Parisi, and Miguel Angel Virasoro.

(World Scientific, 1987) QC176.8.S68 M61.

### Asymptotic Analysis [Elser, 4/12-5/5]

*Advanced mathematical methods for scientists and engineers*, by Carl M. Bender and Steven A. Orszag.

(McGraw-Hill, 1978); QA371.B45.