

Boulder Summer School 2005

References for Halperin's lectures on theory of quantum Hall effects.

I. Articles available on the web. References listed as cond-mat are available free from xxx.arXiv.cornell.edu .

A. References on the main topics of the lectures

1. "Composite Fermions and the Fermion-Chern-Simons Theory",
Bertrand I. Halperin, cond-mat/9812135
Comments: 13 pages, including 2 figures. Invited talk at International Symposium, Quantum Hall Effect: Past, Present and Future, Stuttgart, July 2003. Physica E **20**, 71 (2003).
2. "Half-filled Landau level as a Fermi liquid of dipolar quasiparticles",
A. Stern, B. I. Halperin, F. von Oppen, S. H. Simon, cond-mat/9812135
Phys. Rev. B **58**, 13539 (1998)
3. "The Chern-Simons Fermi Liquid Description of Fractional Quantum Hall States",
Steven H. Simon cond-mat/9812186
Comments: 104 pages, Chapter in "Composite Fermions", ed. O. Heinonen, (World Scientific 1998).
4. "Hamiltonian Theories of the FQHE",
Ganpathy Murthy, R.Shankar, cond-mat/0205326
Comments: 75 Pages, Latex 15 Figs Final version to appear in RMP October 2003
5. "Theory of the half-filled Landau level." B. I. Halperin, P. A. Lee, and N. Read, Phys. Rev. B **47**, 7312 (1993)
6. "Quantized Hall conductance, current-carrying edge states, and the existence of extended states in a two-dimensional disordered potential," Phys. Rev. B **25**, 2185 (1982).

B. References on current topics, mentioned only briefly in lectures.

7. "Paired states of fermions in two dimensions with breaking of parity and time-reversal symmetries, and the fractional quantum Hall effect",
N. Read and Dmitry Green, cond-mat/9906453
Journal-ref: Phys.Rev. B **61** (2000) 10267
Comment: Discusses states with non-abelian statistics, such as the Pfaffian state at filling fraction $5/2$, from the point of view of fermion-Chern-Simons theory.

8. "Bose-Einstein condensation of excitons in bilayer electron systems,"
J. P. Eisenstein and A. H. MacDonald, cond-mat /0404113
9. "A dc voltage step-up transformer based on a bi-layer $\nu=1$ quantum Hall system"
B. I. Halperin, Ady Stern, and S. M. Girvin, cond-mat/0301442
Phys. Rev. B **67**, 234323 (2003)
10. "Conductivity tensor of striped quantum Hall phases,"
Felix von Oppen, Bertrand I. Halperin, and Ady Stern, cond-mat/9910132
Comment: Has references which will give an entry into work on striped (charge-density-wave) phases in higher Landau levels.

II. Books:

- D. Yoshioka, The Quantum Hall Effect, (Springer 2002)
- O. Heinonen, editor, Composite Fermions, (World Scientific, 1998)
- S. Das Sarma and A. Pinczuk, editors, Perspectives in Quantum Hall Effects, (Wiley 1997) *Comment:* Contains article by B. I. Halperin on Fermion-Chern-Simons theory of the half-filled Landau level.
- T. Chakraborty and P. Piettilainen, The Quantum Hall Effects: Integral and Fractional, (Springer 1995)
- R. E. Prange and S. M. Girvin, editors, The Quantum Hall Effect, (Springer 1990) 2nd ed.
- Z. F. Ezawa, Quantum Hall Effects: Field Theoretical approach and Related Topics, (World Scientific, 2000)