

Physics 598  
Spring Semester 2016, Academic Year 2015/2016  
List of Suggested Term Papers

Professor Eduardo Fradkin

October 21, 2015

1. Non-linear Sigma models and quantum spin chains.  
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3. Quantum Dimer Models  
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4. Localization theory and the IQHE.  
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5. Quantum Hall Effect on a Lattice, Berry Phase, and Topological Invariants  
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M. Kohmoto, Ann. Phys. 160, 343 (1985)  
Q. Niu, D. J. Thouless, and Y. S. Wu, Phys. Rev. B 31, 3372 (1985).
  6. Laughlin's theory of the FQHE.  
References: R. Laughlin, Phys. Rev. Lett. 50, 1395 (1983)  
R. Laughlin in Chapter 7 of the book by S. Girvin and R. Prange, *The Quantum Hall Effect*.
  7. Hierarchies of Fractional Quantum Hall States  
References: F. D. M. Haldane, Phys. Rev. Lett. 51, 605 (1983)  
B. I. Halperin, Phys. Rev. Lett. 52, 1583 (1984)  
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  14. Edge States and Chiral Luttinger Liquids.  
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