

CURRICULUM VITAE

Xin Wan

Zhejiang Institute for Modern Physics, Zhejiang University
Zheda Road 38, Hangzhou 310027, P.R. China
Tel: +86-571-87953694
FAX: +86-571-87953689
Email: xinwan@zimp.zju.edu.cn

EDUCATION

Ph.D. (2000), M.A. (1997) Sept. 1995 - Sept. 2000
Department of Electrical Engineering, Princeton University, Princeton, New Jersey, U.S.A.
Advisor: Prof. Ravindra N. Bhatt

B.Sc. (1995) Sept. 1990 - July 1995
Department of Physics, Fudan University, Shanghai, China.

EMPLOYMENT HISTORY

Professor Since May 2005
Zhejiang Institute of Modern Physics, Zhejiang University, Hangzhou, China

Scientific Staff Member (Wissenschaftlicher Mitarbeiter) June 2003 to May 2005
Institut für Nanotechnologie, Forschungszentrum Karlsruhe, Karlsruhe, Germany

Postdoc Research Associate Sept. 2000 to May 2003
National High Magnetic Field Laboratory, Tallahassee, Florida, U.S.A.

TEACHING

Fall 2006, Fundamentals of Semiconductor Physics
Spring 2006, Fluid Statics and Dynamics (Part of Physics I for Chu Kechen Honors College)
Fall 2005, Quantum Mechanics II

RESEARCH INTEREST

I am primarily interested in theoretical condensed matter physics, in particular disordered and interacting quantum systems, including nanoscale and mesoscopic systems and strongly correlated systems. The current focus of my research is the fractional quantum Hall effect and topological quantum computation. I have interest in the interaction between physics and computer science and engineering, including spintronics or quantum computation on the hardware side, as well as parallel and high-performance computation on the software side.

HONORS AND AWARDS

- Ray Grimm Memorial Prize in Computational Physics, Princeton University, 1999
- T.D. Lee Fellowship in Physics, Fudan University, 1990-1994

ACADEMIC ACTIVITIES

1. Sino-German Workshop on Novel Concepts in Disordered and Interacting Quantum Systems, Hangzhou, March 11-18, 2007. (Chinese coordinator; German Coordinator: Prof. Dr. Peter Wölfle)
2. Mini-Workshop on Topological Quantum Computation, Hangzhou, July 6-7, 2006. (Organizer; Co-organizers: Prof. Zhenghan Wang, Prof. Kun Yang)

INVITED TALKS

1. “Understanding crossover physics in random spin chains”, Workshop on the frontiers of condensed matter and statistical physics, Nanjing · Changshu, China, October 27-28, 2006.
2. “Edge Excitations and Non-Abelian Statistics in the Moore-Read State”, Zhejiang University-Rice University Workshop on Quantum Matter, Hangzhou, China, October 16-17, 2006.
3. “Topological Quantum Computation”, Chinese Physical Society, Fall Meeting, Beijing, China, September 15-17, 2006.
4. “Understanding Edge Excitations in Fractional Quantum Hall Systems”, Mini-Workshop on Topological Quantum Computation, Hangzhou, China, July 6-7, 2006.
5. “From Quantum Hall Effects to Topological Quantum Computation”, Center for Advanced Study, Tsinghua University, Beijing, May 25, 2006.
6. “Topological Quantum Computation”, China-Singapore Joint Symposium on Research Frontiers in Physics, Hangzhou, China, May 19-21, 2006.
7. “Physics at Strong Disorder”, First Pan-Yangtze-Delta Workshop on Strongly Correlated Physics, Fudan University, Shanghai, China, February 25, 2006.
8. “Disordered Systems with Broad Energy Scales”, University of Karlsruhe, Karlsruhe, Germany, January 23, 2006.
9. “Spin Quantum Hall Effect in Disordered Superconducting Systems with Broken Time-Reversal Symmetry”, Chinese Physical Society, Fall Meeting, Wuhan, China, September 18-20, 2005.
10. “Application of Topological Quantum Numbers in the Fractional Quantum Hall Effect: the Calculation of Mobility Gap”, The 13th National Conference on Condensed Matter Theory and Statistical Physics, Yinchuan, China, August 25-27, 2005.
11. “Charge and Spin Transport in Disordered Hall Systems”, CCAST Workshop on Quantum Charge and Spin Transport, Beijing, China, May 30-June 3, 2005.

12. “Frustration and Disorder in Diluted Magnetic Semiconductors”, International Conference on Physics Education and Frontier Research (The 4th OCPA Joint Meeting of Chinese Physicists Worldwide), Shanghai, China, June 28-July 1, 2004.
13. “Unconventional Ferromagnetism in Diluted Magnetic Semiconductors”, Zhejiang University, Hangzhou, Zhejiang, China, June 2004.
14. “Topological Orders and Edge Tunneling in Fractional Quantum Hall Liquids”, Institute of Condensed Matter Theory seminar, University of Karlsruhe, Karlsruhe, Germany, January 2004.
15. “Mobility Gap, Edge Tunneling and Edge Reconstruction of Fractional Quantum Hall Liquids”, Fudan University, Shanghai, China, December 2003; Zhejiang University, Hangzhou, Zhejiang, China, December 2003; Nanjing University, Nanjing, Jiangsu, China, January 2004.
16. “Reconstruction of Fractional Quantum Hall Edges”, University of Karlsruhe, Karlsruhe, Germany, October 2002; University of Tübingen, Tübingen, Germany, October 2002; University of Saarland, Saarbrücken, Germany, October 2002.
17. “Unconventional Ferromagnetism in Diluted Magnetic Semiconductors”, Workshop on Collective Phenomena in Disordered Insulators and Spin Glasses, Aspen Center for Physics, Aspen, Colorado, U.S.A., July 2002.
18. “Monte Carlo Simulation of Doped, Diluted Magnetic Semiconductors”, Condensed Matter Theory seminar, National High Magnetic Field Laboratory, Tallahassee, Florida, U.S.A., October 2000.
19. “Monte Carlo Simulations of Random Systems with Multiple Energy Scales”, Computational Research in Princeton seminar, Princeton University, Princeton, New Jersey, U.S.A., October 1999.

PUBLICATIONS

1. Xin Wan, Kun Yang, and E. H. Rezayi, Edge excitations and non-Abelian statistics in the Moore-Read state: A numerical study in the presence of Coulomb interaction and edge confinement, *Phys. Rev. Lett.* 97, 256804 (2006).
2. Xin Wan, D. N. Sheng, E. H. Rezayi, Kun Yang, R. N. Bhatt, and F. D. M. Haldane, Mobility Gap in Fractional Quantum Hall Liquids: Effects of Disorder and Layer Thickness, *Phys. Rev. B* 72, 075325 (2005), see also *Virt. J. Nano. Sci. Tech.* 12, Issue 8 (2005).
3. Xin Wan, F. Evers, and E. H. Rezayi, Universality of the Edge Tunneling Exponent of Fractional Quantum Hall Liquids, *Phys. Rev. Lett.* 94, 166804 (2005).
4. R. N. Bhatt, Chenggang Zhou, M. P. Kennett, Mona Berciu, and Xin Wan, Disorder and Frustration in Diluted Magnetic Semiconductors at Low Carrier Densities, *Int. J. Mod. Phys. B* 19, 5-7 (2005).
5. Qinghong Cui, Xin Wan, and Kun Yang, Numerical Study of Spin Quantum Hall Transitions in Superconductors with Broken Time-Reversal Symmetry, *Phys. Rev. B* 70, 094506 (2004).
6. Chenggang Zhou, M. P. Kennett, Xin Wan, Mona Berciu, and R. N. Bhatt, Exchange Anisotropy Effects on Ferromagnetism in Diluted, Magnetic Semiconductors, *J. Magn. Magn. Mater.* 272-276, 2014 (2004).
7. Chenggang Zhou, M. P. Kennett, Xin Wan, Mona Berciu, and R. N. Bhatt, Exchange Anisotropy, Disorder and Frustration in Diluted, Predominantly Ferromagnetic, Heisenberg Spin Systems, *Phys. Rev. B* 69, 144419 (2004).
8. Xin Wan, E. H. Rezayi, and Kun Yang, Edge Reconstruction in the Fractional Quantum Hall Regime, *Phys. Rev. B* 68, 125307 (2003).
9. D. N. Sheng, Xin Wan, E. H. Rezayi, Kun Yang, R. N. Bhatt, and F. D. M. Haldane, Disorder-Driven Collapse of the Mobility Gap and Transition to an Insulator in the Fractional Quantum Hall Effect, *Phys. Rev. Lett.* 90, 256802 (2003).
10. Xin Wan, Kun Yang, Chenggang Zhou, and R.N. Bhatt, Spin Waves in Random Spin Chains, *J. Appl. Phys.* 93, 7390 (2003).
11. R. N. Bhatt, Mona Berciu, M. P. Kennett, and Xin Wan, Diluted Magnetic Semiconductors in the Low Carrier Density Regime, *J. Supercond.* 15, 71 (2002).
12. R. N. Bhatt, Xin Wan, M. P. Kennett, and Mona Berciu, Numerical Simulations of Random Spins (and Fermionic) Models with a Wide Distribution of Energy Scales, *Comp. Phys. Comm.* 147, 684 (2002).
13. Xin Wan, Kun Yang, and R. N. Bhatt, Modified Spin-Wave Study of Random Antiferromagnetic-Ferromagnetic Spin Chains, *Phys. Rev. B* 66, 014429 (2002).

14. Xin Wan and R. N. Bhatt, Two-Dimensional Wigner Crystal in Anisotropic Semiconductors, *Phys. Rev. B* 65, 233209 (2002).
15. Xin Wan, Kun Yang, and E. H. Rezayi, Reconstruction of Fractional Quantum Hall Edges, *Phys. Rev. Lett.* 88, 056802 (2002).
16. R. N. Bhatt and Xin Wan, Mesoscopic Effects in the Quantum Hall Regime, *Pramana-J. Phys.* 58, 271 (2002).
17. Xin Wan and R. N. Bhatt, Search for Multiple-Step Integer Quantum Hall Transitions, *Phys. Rev. B* 64, 201313 (2001).
18. R. N. Bhatt and Xin Wan, Monte Carlo Simulations of Doped, Diluted Magnetic Semiconductors - A System with Two Length Scales, *Int. J. Mod. Phys. C* 10, 1459 (1999).
19. Jian Zi, Xin Wan, Guanghong Wei, Kaiming Zhang and Xide Xie, Lattice Dynamics of Zinc-Blende GaN and AlN .1. Bulk Phonons, *J. Phys.-Condens. Matter* 8, 6323 (1996).