

# CHUANWEI ZHANG

## CURRICULUM VITAE

updated Nov 25, 2007

---

### PERSONAL AND CONTACT INFORMATION

Condensed Matter Theory Center  
Department of Physics  
University of Maryland  
College Park, MD, 20742  
USA

**Phone:** 301-405-6173 (office)  
**Email:** [cwzhang@umd.edu](mailto:cwzhang@umd.edu)  
**Web:** <http://www.glue.umd.edu/~cwzhang/>  
**Visa Status:** H1-B  
**Born:** China

### EDUCATION

- 09/2000 --- 12/2005 **PhD in Physics**  
Center for Nonlinear Dynamics, Department of Physics, University of Texas at Austin  
Advisors: Prof. Qian Niu & Prof. Mark G. Raizen  
Dissertation: "Nonlinear Dynamics of Bose-Einstein Condensates"
- 09/1995 --- 07/2000 **BS in Physics**  
Special Class for the Gifted Young, University of Science and Technology of China  
Advisor: Prof. Guang-Can Guo

### RESEARCH INTERESTS

- Ultra-Cold Atomic Physics
- Physical Implementations of Quantum Information and Quantum Computation
- Quantum and Atomic Optics
- Strongly Correlated Multiferroic Materials
- High Temperature Superconductivity
- Nonlinear Dynamics and Quantum Chaos

### HIRSCH INDEX NUMBER: 8

### EMPLOYMENT

#### ➤ Research

- 01/2006 --- Current **Postdoctoral Research Fellow**  
Condensed Matter Theory Center, Department of Physics, University of Maryland at College Park. With Prof. Sankar Das Sarma
  - ❖ Neutral atoms quantum computation; Topological quantum excitations and topological quantum computation in Kitaev optical lattices, chiral p-wave superfluid and chiral p-wave superconductor; Detection of strong-correlated phases in optical lattices; Non-equilibrium spin dynamics in trapped Fermi gases; Ginzburg-Landau theory for multiferroic materials; Chiral superconductivity
- 09/2002 --- 12/2005 **Graduate Research Assistant**  
Center for Nonlinear Dynamics, Department of Physics, University of Texas at Austin  
Advisor: Prof. Qian Niu, Co-Advisor: Prof. Mark G. Raizen.
  - ❖ Many body effects in quantum chaos; Nonlinear dynamics of Bose-Einstein

condensates; Berry phase effects in superfluid; Quantum information processing in optical systems

- 06/2001 --- 08/2002 **Graduate Research Assistant**  
Center for Nonlinear Dynamics, Department of Physics, University of Texas at Austin  
Advisor: Prof. Mark G. Raizen.
  - ❖ Experimental research on ultra-cold atomic gases
- 04/1999 --- 06/2000 **Undergraduate Research Assistant**  
Key Lab for Quantum Information, University of Science and Technology of China  
Advisor: Prof. Guang-Can Guo.
  - ❖ Theory of quantum state clone and quantum state estimation. Implementation of quantum state clone in optical systems.
- **Teaching**
  - 01/2004 --- 12/2005 **Instructor of Physical Science classes**  
Department of Physics, University of Texas at Austin
  - 09/2003 --- 12/2003 **Instructor of undergraduate physics labs**  
Department of Physics, University of Texas at Austin
  - 09/2000 --- 05/2001 **Teaching assistant of undergraduate classes**  
Department of Physics, University of Texas at Austin

#### **AWARDS AND SOCIETIES**

- Best Bachelor Thesis, University of Science and Technology of China, 2000
- Member of American Physics Society
- Member of the American Association for the Advancement of Science

#### **PROFESSIONAL ACTIVITIES**

- Referee for Physical Review Letters
- Referee for Physical Review A
- Referee for Physical Review B
- Referee for Nature Physics

#### **PRESENTATIONS AND CONFERENCES**

- *A Phenomenological Theory of Spiral Magnets in Multiferroics*, Condensed Matter Theory Center Symposium, Sep. 2007, University of Maryland, College Park, Maryland
- *Anyonic Braiding in Optical Lattices*, American Physical Society March Meeting, March 2007, Denver, Colorado
- *Manipulating and Detecting Many-Body Quantum States in Optical Lattices*, Optical Lattice Emulator (OLE) Proposer's Day Workshop, Defense Advanced Research Projects Agency, Dec. 2006, Arlington, Virginia
- *Topological Quantum Computation*, Informal talk, University of Michigan, Nov. 2006, Ann Arbor, Michigan
- *Manipulation of Single Atoms in Optical Lattices: Applications in Quantum Computation and Strongly Correlated Systems*, Quantum Information/Bose-Einstein Condensation (QIBEC) seminar, National Institute of Standards and Technology, Aug.

2006, Gaithersburg, Maryland

- *Berry Phase Effect on Dynamics of Bogoliubov Quasiparticles in a Nonuniform Superfluid*, American Physical Society March Meeting, March 2006, Baltimore, Maryland
- *Quantum Chaos in Bose-Einstein Condensates*, Condensed Matter Seminar, Feb 2006, University of Maryland, College Park, Maryland
- *Berry Phase Effect on Semiclassical Dynamics of Bogoliubov Quasiparticles*, American Physical Society Division of Atomic, Molecular, and Optical Physics Meeting, May 2005, Lincoln, Nebraska
- *Quantum Chaos of Bogoliubov Waves for a Bose-Einstein Condensate in Stadium Billiards*, American Physical Society March Meeting, March 2005, Los Angeles, California
- *Quantum Chaos of a Bose-Einstein Condensate*, Atomic, Molecular, and Optical Physics Seminar, Aug. 2004, University of Michigan, Ann Arbor, Michigan
- *Transition to Instability in a Kicked Bose-Einstein Condensate*, Nonlinear Dynamics Seminar, Sep. 2003, University of Texas, Austin, Texas
- *Anti-resonance, Quantum Beating and Instability in a Kicked Bose-Einstein Condensate*, American Physical Society March Meeting, March 2003, Austin, Texas
- *Bose-Einstein Condensates in Billiards*, Nonlinear Dynamics Seminar, Nov. 2002, University of Texas, Austin, Texas