

## Curriculum Vitae

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Date of Birth: Feb. 1, 1967

### EDUCATION

- Dec. 1995 **Ph.D.** Physics, University of Mainz, Germany.  
Thesis: “Cooling Rate Dependencies of Structural Glasses.”  
Thesis advisor: Professor K. Binder.
- Nov. 1992 **“Diplom”** (similar to M.S.) Physics, University of Mainz, Germany.  
Thesis: “Order Parameter-Cumulant of Temperature Driven Phase Transitions  
of First and Second Order and Simulation of the Short-Range 3D 3-State  
Potts Ferromagnet and Potts Glass in a Homogeneous Field.”  
Thesis advisor: Professor K. Binder.
- 1989–1990 Physics Studies at the University of California, Santa Barbara.
- Oct. 1988 **“Vordiplom”** (similar to B.S.) Physics, University of Göttingen, Germany.

### FELLOWSHIPS AND AWARDS

- 2004 *Summer Research Stipend*, Bucknell University
- 2002 *Deutsche Forschungsgemeinschaft* (German funding agency ) Stipend
- 2001 *Sonderforschungsbereich* (German funding agency ) Stipend
- 1999 *Sonderforschungsbereich* (German funding agency ) Stipend
- 1996–1998 *DFG-Forschungsstipendium* (German postdoctoral fellowship).
- 1989–1990 Exchange Abroad Program Fellowship, University of California.
- 1989–1990 Fulbright Travel Grant.

### TEACHING EXPERIENCE

- 2004–present Bucknell University: Associate Professor of Physics
- 1998–2004 Bucknell University: Assistant Professor of Physics
- April, May 1998 University of Maryland, College Park: two guest lectures for Prof. M. E. Fisher
- 1993–1994 University of Mainz: Mentored and published with *Diplom* students F.F. Haas and B.O. Peters.
- 1992–1996 University of Mainz: Teaching assistant for eight semesters.

## RESEARCH EXPERIENCE

- Jan.-May 2002 *Guest Professor Research:* Lengthscales and clusteranalysis of a binary Lennard-Jones glass; in group of Professor A. Zippelius, University of Göttingen, Germany.
- July-Dec. 2001 *Guest Professor Research:* Single particle jumps below the glass transition; in group of Professor K. Binder, University of Mainz, Germany.
- May-July 1999 *Guest Professor Research:* Dynamic heterogeneities of a binary Lennard-Jones glass; in group of Professor K. Binder, University of Mainz, Germany.
- May 1996–  
July 1998 *Postdoctoral Research:* Study of various inhomogeneous liquids by analytical methods and computer simulations; with Professor J. Weeks, University of Maryland.
- Dec. 1992–  
Dec. 1995 *Ph.D. Thesis Research:* Computer simulation of structural glasses, including binary Lennard-Jones and amorphous SiO<sub>2</sub>; with Professor K. Binder and Dr. W. Kob, University of Mainz, Germany.
- Oct. 1991–  
Nov. 1992 *Master's Thesis Research:* Finite size scaling of first order phase transitions and simulations of ferromagnets and spin glasses; with Professor K. Binder, University of Mainz.

## PRIMARY PUBLICATIONS (also as K. Vollmayr)

1. "Monte Carlo Methods for First Order Phase Transitions: Some Recent Progress," K. Binder, K. Vollmayr, H.-P. Deutsch, J. Reger, M. Scheucher and D. P. Landau, *Internat. J. Mod. Phys. C* **3**, 1025 (1992).
2. "Finite Size Effects at Thermally-Driven First Order Phase Transitions: a Phenomenological Theory of the Order Parameter Distribution," K. Vollmayr, J. D. Reger, M. Scheucher and K. Binder, *Z. Phys. B* **91**, 113 (1993).
3. "The Potts Glass in Uniform and Random Fields: a Monte Carlo Investigation," F. F. Haas, K. Vollmayr and K. Binder, *Z. Phys. B* **99**, 393 (1995).
4. "Cooling Rate Dependence of the Internal Structure of a Lennard-Jones Glass," K. Vollmayr, W. Kob and K. Binder, *Europhys. Lett.* **32**, 715 (1995).
5. "Finite Size Scaling in the p-State Mean Field Potts Glass: Exact Statistical Mechanics for Small Samples," B. O. Peters, B. Dünweg, K. Binder, M. d'Onorio de Meo and K. Vollmayr, *J. Phys. A* **29**, 3503 (1996).
6. "How do the Properties of a Glass Depend on the Cooling Rate? A Computer Simulation Study of a Lennard-Jones System," K. Vollmayr, W. Kob and K. Binder, *J. Chem. Phys.* **105**, 4714 (1996).

7. "Cooling Rate Effects in Amorphous Silica: A Computer Simulation,"  
K. Vollmayr, W. Kob and K. Binder, *Phys. Rev. B* **54**, 15808 (1996).
8. "Numerical Study of the Electronic Structure of Amorphous Silica,"  
T. Koslowski, W. Kob and K. Vollmayr, *Phys. Rev. B* **56**, 9469 (1997).
9. "Intermolecular Forces and the Structure of Uniform and Nonuniform Fluids,"  
J.D. Weeks, K. Vollmayr and K. Katsov, *Physica A* **244**, 461 (1997).
10. "Roles of Repulsive and Attractive Forces in Determining the Structure of Nonuniform Liquids: Generalized Mean Field Theory,"  
J. D. Weeks, K. Katsov and K. Vollmayr, *Phys. Rev. Lett.* **81**, 4400 (1998).
11. "Using Mean Field Theory to Determine The Structure of Uniform Fluids,"  
K. Vollmayr-Lee, K. Katsov and J. D. Weeks, *J. Chem. Phys.* **114**, 416 (2001).
12. "Dynamical Heterogeneities Below the Glass Transition,"  
K. Vollmayr-Lee, W. Kob, K. Binder and A. Zippelius, *J. Chem. Phys.* **116**, 5158 (2002).
13. "Single Particle Jumps in a Binary Lennard-Jones System Below The Glass Transition,"  
K. Vollmayr-Lee, accepted for publication in *J. Chem. Phys.*.

#### CONFERENCE CONTRIBUTIONS (published)

14. "Static Magnetic Response of the Three-state Potts Glass,"  
K. Vollmayr, G. Schreider, J. D. Reger and K. Binder, *J. Non-Cryst. Solids* **172**, 488 (1994).
15. "Testing Mode-Coupling Theory and Investigating the Dependence of  $T_g$  and Other Bulk Properties on the Cooling Rate for a Binary Lennard-Jones System,"  
W. Kob, K. Vollmayr and H. C. Andersen, *Proceeding of XVII Internat. Congress on Glass*, vol. 1 (International Academic Publishers, Beijing, 1995) p. 301.
16. "Molecular Dynamics Computer Simulation of Cooling Rate Effects in a Lennard-Jones Glass,"  
K. Vollmayr, W. Kob and K. Binder, *Computer Simulation Studies in Condensed Matter Physics VIII*, ed. D. P. Landau, K. K. Mon and H. B. Schüttler (Springer Verlag, Berlin 1995) p. 117.
17. "Molecular Dynamics Simulation of Cooling Rate Effects in Structural Glasses,"  
K. Vollmayr, W. Kob and K. Binder, *Non-Equilibrium Phenomena in Supercooled Fluids, Glasses and Amorphous Materials*, ed. M. Giordano, M. P. Tosi, and D. Leporini, Workshop Proceedings, Pisa 1995 (World Scientific Publishing Co., Singapore, 1996) p. 367.
18. "Investigating the Cooling Rate Dependence of Amorphous Silica: A Computer Simulation Study,"  
K. Vollmayr and W. Kob, *Ber. Bunsenges. Phys. Chem.* **100**, 1399 (1996).

19. "Computer Simulation of Models for the Structural Glass Transition,"  
K. Binder, J. Baschnagel, W. Kob, K. Okun, W. Paul, K. Vollmayr and M. Wolfgardt,  
*Complex Behavior of Glassy Systems*, ed. M. Rubi and C. Perez-Vicente, Proceedings  
of the XIV Sitges Conference (Springer, Berlin, 1997) p. 22.
20. "Computer Simulations of Silicate Glasses"  
W. Kob, K. Vollmayr, J. Horbach and K. Binder, preprint.
21. "Cooling Rate Dependence and Dynamic Heterogeneity Below The Glass Transition in a  
Lennard-Jones Glass"  
K. Vollmayr-Lee, W. Kob, K. Binder and A. Zippelius, *Int. J. Mod. Phys. C* **10**, 1443  
(1999).
22. "Single Particle Jumps in a Binary Lennard-Jones Glass,"  
K. Vollmayr-Lee, *Supercooled Liquids, Glass Transition and Bulk Metallic Glasses*, ed.  
T. Egami, A. L. Greer., A. Inoue, S. Ranganathan, *Mater. Res. Proc.* **754** (Materials  
Research Society, Warrendale, 2003).
23. "Single Particle Jumps in a Glass: A Computer Simulation,"  
K. Vollmayr-Lee, *3rd International Symposium on Slow Dynamics in Complex Systems*,  
ed. M. Tokuyama and I. Oppenheim, *AIP Conference Proceedings* **708**, 651 (Melville,  
2004).

## INVITED TALKS

- T1. Johannes-Gutenberg University, Seminar, (Mainz, Germany, December 1992); "The Or-  
der Parameter Cumulant at Phase Transitions of First Order."
- T2. Schott-Glaswerk, Seminar, (Mainz, Germany, November 1994); "Cooling Rate Effects in  
a Simple Glass Former: A Computer Simulation."
- T3. Johannes-Gutenberg University, Seminar, (Mainz, Germany, November 1994); "Cooling  
Rate Effects in a Lennard-Jones Glass: A Molecular Dynamics Simulation."
- T4. Schott-Glaswerke, Seminar, (Mainz, Germany, September 1995); "Cooling Rate Effects  
in Amorphous SiO<sub>2</sub>: A Computer Simulation."
- T5. Schott-Glaswerke, special lecture, (Mainz, Germany, February 1996); "Cooling Rate Ef-  
fects in amorphous SiO<sub>2</sub>: A Computer Simulation."
- T6. Georg-August University, Seminar, (Göttingen, Germany, January 1996); "Cooling Rate  
Effects in Amorphous SiO<sub>2</sub>: A Computer Simulation."
- T7. Forschungszentrum Jülich, Seminar, (Jülich, Germany, April 1996); "Cooling Rate Effects  
in Amorphous SiO<sub>2</sub>: A Computer Simulation."
- T8. University of Augsburg, Seminar, (Augsburg, Germany, May 1996); "Cooling Rate Effects  
in Amorphous SiO<sub>2</sub>: A Computer Simulation."
- T9. NIST, Seminar, (Gaithersburg, MD, June 1997); "Computer Simulation of Amorphous  
SiO<sub>2</sub>: Cooling-Rate Effects."

- T10. Catholic University of America, Physics Colloquium, (Washington, DC, October 1997); “Computer Simulation of Amorphous SiO<sub>2</sub>: Cooling-Rate Effects.”
- T11. Bucknell University, Physics Coffee Talk (January 1998); “Computer Simulation of Glass.”
- T12. Louisiana State University, Seminar, (Baton Rouge, LA, February 1998); “Molecular Dynamics Simulation of a-SiO<sub>2</sub>: Cooling Rate Effects.”
- T13. University of Mainz, Seminar, (Mainz, Germany, July 1999); “The Role of Repulsive and Attractive Forces in Inhomogeneous Liquids.”
- T14. US-Japan Bilateral Seminar (Hawaii, July 1999); “Cooling Rate Dependence and Dynamic Heterogeneity Below the Glass Transition in a Lennard-Jones Glass.”
- T15. Lycoming College, Seminar, (Williamsport, PA, Oct. 1999); “Computer Simulation of Glasses.”
- T16. Johannes-Gutenberg University, Seminar, (Mainz, Germany, August 2001); “Dynamic Heterogeneities in a Lennard-Jones Glass.”
- T17. Westfälische Wilhelms-University, Seminar, (Münster, Germany, November 2001); “Dynamic Heterogeneities Below The Glass Transition.”
- T18. University of Oxford, Seminar, (Oxford, United Kingdom, May 2002); “Particle Jumps in a Structural Glass: a Computer Simulation.”
- T19. Georg-August University, Seminar, (Göttingen, Germany, May 2002); “Particle Jumps in a Structural Glass: a Computer Simulation.”
- T20. Schott Glass Technologies, Seminar, (Duryea, PA, March 2003); “Cooling Rate Dependence of Amorphous Silica: A Computer Simulation.”

## CONFERENCES AND WORKSHOPS ATTENDED

- C1. *DPG* (German Physical Society) *Frühjahrstagung*, (Mainz, Germany, March 1993);  
Poster: “Order Parameter Cumulant for Phase Transitions of First Order.”
- C2. *DPG Frühjahrstagung: Solid State Physics*, (Regensburg, Germany, March/April 1993);  
Poster: “Order Parameter Cumulant at Thermally-Driven First-Order Phase Transitions.”
- C3. *Relaxations in Complex Systems*, (Alicante, Spain, July 1993);  
Poster: “Static Magnetic Response of the Three-State Potts Glass in Three Dimensions.”
- C4. *DPG Frühjahrstagung: Solid State Physics*, (Münster, Germany, March 1994);  
Poster: “Static Magnetic Response of the Three-State Potts Glass.”
- C5. *Phase Transitions in Non-Metallic Solids, Gordon Research Conference*,  
(Volterra, Italy, May 1994);  
Poster: “Molecular Dynamics Simulation of Cooling Rate Effects in a Binary Lennard-Jones System.”

- C6. *Workshop on Non Equilibrium Phenomena in Supercooled Fluids, Glasses and Amorphous Materials*, (Pisa, Italy, September 1995);  
Poster: “Molecular Dynamics Simulation of Cooling Rate Effects in a Lennard-Jones Glass.”
- C7. *DPG Frühjahrstagung: Solid State Physics*, (Regensburg, Germany, March 1996);  
Talk: “Computer Simulation of Amorphous SiO<sub>2</sub>”
- C8. *APS March Meeting*, (Kansas-City, MO, March 1997);  
Talk: “Cooling Rate Dependence of Amorphous SiO<sub>2</sub>: A Computer Simulation.”
- C9. *Liquids Gordon Conference, Chemistry and Physics*, (Holderness, NH, Aug. 1997);  
Poster: “Structure of Inhomogeneous Liquids: Test of a Mean Field Approach via Simulation.”
- C10. *APS March Meeting*, (Los Angeles, CA, March 1998);  
Talk: “New Analytical Method for Inhomogeneous Liquids.”
- C11. *US-Japan Bilateral Seminar*, (Maui, Hawaii, July 1999);  
Talk: “Cooling Rate Dependence and Dynamic Heterogeneity Below the Glass Transition in a Lennard-Jones Glass.”
- C12. *Workshop for New Physics Faculty (AAPT)*, (College Park, MD, November 1999).
- C13. *APS March Meeting* (Minneapolis, MN, March 2000);  
Talk: “Mobile & Immobile Particles Below The Glass Transition.”
- C14. *CPS-AAPT Meeting*, (Bethlehem, PA, April 2000).
- C15. *Gordon Conference: Physics Research And Education*, (Plymoth, NH, June 2000).
- C16. *4th International Discussion Meeting on Relaxations in Complex Systems*, (Hersonissos, Crete, June 2001);  
Talk: “Dynamic Heterogeneities Below The Glass Transition.”
- C17. *Glastag*, (Göttingen, Germany, Oct. 2001);  
Talk: “Dynamic Heterogeneities in a Lennard-Jones Glass.”
- C18. *DPG Frühjahrstagung: Solid State Physics*, (Regensburg, Germany, March 2002);  
Talk: “Dynamic Heterogeneities Below The Glass Transition.”
- C19. *Glastag*, (Göttingen, Germany, April 2002);  
Talk: “Lengthscales And Clusteranalysis of a Binary Lennard-Jones Glass.”
- C20. *MRS Fall Meeting*, (Boston, MA, Dec. 2002);  
Poster: “Single Particle Jumps in a Binary Lennard-Jones Glass.”
- C21. *3rd International Symposium on Slow Dynamics in Complex Systems*, (Sendai, Japan, November 2003);  
Talk: “Single Particle Jumps in a Glass: A Computer Simulation”