Uwe Claus Täuber

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Curriculum Vitae

Personal Data

Birthday/-place:	12 September 1963, Rehau/Ofr., Bavaria, Germany
Nationality:	German
Family:	married, two daughters

Education

June 1999:	*Dr.rer.nat.habil.*, TU München (Germany)
July 1992:	*Dr.rer.nat.* (Ph.D.), *mit Auszeichnung* (with distinction), TU München; Dissertation "*Koexistenzanomalien in der Dynamik isotroper Systeme*" ("Coexistence anomalies in the dynamics of isotropic Systems")
May 1988:	Diploma (M.S. degree) in physics, *Dipl.-Phys. (Univ.)*, *mit Auszeichnung* (with distinction), TU München; Diploma thesis "*Elastische Phasenübergänge zweiter Ordnung in inhomogenen Medien*" ("Second-order elastic phase transitions in inhomogeneous media")
1982 – 1988:	Physics studies (*Allgemeine Physik*) at the TU München
May 1982:	*Abitur* (premium grade average 1.0: 897 pts. out of 900)
1973 – 1982:	*Gymnasium* (high school) Bad Kissingen (Germany)
1969 – 1973:	Elementary school at Göttingen and Bad Kissingen

Academic Career

since 2006:	Professor, Physics Department, Virginia Tech
2003 – 2006:	Associate Professor, Physics Department, Virginia Tech
1998 – 2003:	Assistant Professor, Physics Department, Virginia Tech
1997 – 1998:	Senior Scientist at the Institute for Theoretical Physics, TU München, funded by the *Deutsche Forschungsgemeinschaft* through a DFG *Habilitation* Fellowship
1995 – 1997:	Postdoctoral Research Associate at Oxford University, Theoretical Physics (Prof. John L. Cardy); second year funded through a EC TMR Marie Curie Fellowship
1993 – 1995:	Postdoctoral Research Fellow at Harvard University, Condensed Matter Theory (Prof. David R. Nelson); funded through a DFG Postdoctoral Fellowship
1988 – 1993:	Research Assistant, Institute for Theoretical Physics, TU München (Prof. Franz Schwabl)
1987 – 1988:	Diploma Student, Institute for Theoretical Physics, TU München (Prof. Franz Schwabl)
1984 – 1987:	Research Student, Institutes for Nuclear Solid State Physics (Prof. Georg M. Kalvius) and Theoretical Physics (Prof. Franz Schwabl), TU München

Honors and Fellowships

Jan. 2008:	American Physical Society *Outstanding Referee*
Dec. 2007:	Advisory Panel of *J. Phys. A: Math. Theor.*
July 2006:	Virginia Tech Scholar of the Week July 24-30, 2006
Oct.-Dec.05:	Senior Visiting Member, Linacre College, Oxford University
Jun.-Sep.05:	CNRS Directeur de recherche associé at Laboratoire de Physique Théorique, Université de Paris-Sud Orsay
1997 – 1998:	*Habilitation* Fellowship from the *Deutsche Forschungsgemeinschaft* (DFG) and travel grant (DFG Ta 177/2-1,2)
1996 – 1997:	Junior Research Fellow, Linacre College, Oxford University
1996 – 1997:	European Commission Training & Mobility of Researchers Marie Curie Fellowship (Contract ERB FMBI-CT96-1189)
1993 – 1995:	DFG Postdoctoral Fellowship (DFG Ta 177/1–1,2)
1983 – 1988:	German National Scholarship from the *Studienstiftung des deutschen Volkes* (awarded to top 5% of German students)
1982 – 1988:	*Bayerisches Begabtenstipendium* (State of Bavaria outstanding student scholarship)

Teaching Experience

Lecture Courses at Virginia Tech

Students' evaluations rating scale: 1 – 4 (excellent); average 3.7:

- Undergraduate "Thermal Physics" (PHYS 3704), spring semester 1999, 31 students, overall rating by 17 responders: 3.8.
- Graduate "Independent Study: Quantum Field Theory" (PHYS 5974), spring semester 1999, 1 student (no rating).
- Graduate "Statistical Mechanics" (PHYS 5705), fall semester 1999, 5 students, overall rating: 3.8.
- Undergraduate "Thermal Physics" (PHYS 3704), spring semester 2000, 16 students, overall rating by 12 responders: 4.0.
- Graduate "Special Study: Superconductivity" (PHYS 5984), spring and fall semesters 2000, 5 students (no rating).
- Graduate "Statistical Mechanics" (PHYS 5705), fall semester 2000, 12 students, overall rating by 10 responders: 4.0.
- Undergraduate "Thermal Physics" (PHYS 3704), spring semester 2001, 20 students, overall rating by 12 responders: 3.8.
- Graduate "Special Study: Non-Equilibrium Statistical Mechanics" (PHYS 5984), spring semester 2001, 3 students, overall rating: 4.0.
- Undergraduate "Foundations of Physics I – Part 1" (PHYS 2305), fall semester 2001, 68 students, overall rating by 53 responders: 2.9.
- Undergraduate "Special Study: Freshman Physics Seminar" (PHYS 2984), fall semester 2001, 18 students, overall rating by 14 responders: 3.4.
- Undergraduate "Foundations of Physics I – Part 1" (PHYS 2305), spring semester 2002, 92 students, overall rating by 63 responders: 2.9.
- Graduate "Statistical Mechanics" (PHYS 5705), fall semester 2002, 4 students, overall rating: 4.0.
- Graduate "Advanced Solid State Physics 2" (PHYS 6556), spring semester 2003, 2 students, overall rating: 4.0.
- Graduate "Statistical Mechanics" (PHYS 5705), fall semester 2003, 4 students, overall rating: 4.0.

- Undergraduate "Foundations of Nuclear and Particle Physics" (PHYS 3504), spring semester 2004, 28 students, overall rating by 22 responders: 3.7.
- Undergraduate "Introduction to Quantum Mechanics I" (PHYS 4455), fall semester 2004, 17 students, overall rating by 13 responders: 3.8.
- Undergraduate "Introduction to Quantum Mechanics II" (PHYS 4456), spring semester 2005, 16 students, overall rating by 13 responders: 3.8.
- Undergraduate "Introduction to Quantum Mechanics II" (PHYS 4456), spring semester 2006, 17 students, overall rating by 16 responders: 3.1.
- Graduate "Special Study: Superconductivity" (PHYS 5984), spring semester 2006, 3 students, overall rating by 3 responders: 4.0.
- Undergraduate "Introduction to Quantum Mechanics II" (PHYS 4456), spring semester 2007, 13 students, overall rating by 3 responders: 3.7.
- Graduate "Quantum Mechanics II" (PHYS 5456), spring semester 2007, 12 students, overall rating by 9 responders: 3.8.
- Undergraduate "Introduction to Quantum Mechanics II" (PHYS 4456), spring semester 2008, 13 students, overall rating by 10 responders: 3.4.
- Graduate "Quantum Mechanics II" (PHYS 5456), spring semester 2008, 20 students, overall rating by 14 responders: 3.8.
- Graduate "Quantum Mechanics I" (PHYS 5455), fall semester 2008, 15 students, overall rating by 12 responders: 3.8.
- Graduate "Quantum Mechanics II" (PHYS 5456), spring semester 2009, 15 students, overall rating by 11 responders: 3.8.
- Graduate "Quantum Mechanics I" (PHYS 5455), fall semester 2009, 14 students.
- Graduate "Quantum Mechanics II" (PHYS 5456), spring semester 2010.

Graduate Course at Oxford University

- "Dynamic Critical Phenomena", Michaelmas term 1996.

Advanced Level Student Seminars at TU München

- "Functional Integrals in Many-Particle Physics and Relativistic Field Theory", winter semester 1992/93.
- "Selected Topics in Advanced Statistical Physics", summer semester 1992.
- "Many-Particle Physics", winter semester 1988/89.

Problem Classes in Theoretical Physics at TU München

- "Renormalization Group Theory of Critical Phenomena", summer semester 1991.
- "Advanced Quantum Mechanics", winter semester 1990/91.
- "Statistical Physics and Thermodynamics", summer semesters 1987, 1989, 1990.
- "Quantum Mechanics", winter semester 1989/90.

Teaching and Outreach

- I initiated contacts between Tall Oaks Montessori (Elementary) School and the Virginia Tech Physics Outreach Program, and arranged physics demonstrations (spring 2001 and fall 2002) by our undergraduate students, under the guidance of our outreach program coordinators Amy Emerson and Alma Robinson.
- During several visits to the Upper Elementary Class of Tall Oaks Montessori School at Blacksburg, VA, fall 2001 – spring 2003, fall 2007 and 2009, I talked with the students there about large numbers, introduced powers of ten, and explained how to arrive at physical estimates; we discussed present-day astrophysics and cosmology; and I demonstrated the mathematical and logical approach to problem solving.
- I visited Computer Technology classes at Blacksburg Middle School, sixth and seventh grade (fall 2003 and spring 2005), and explained to the students how computers, the internet, and modern technology in general are incorporated into university teaching and research. I also demonstrated the use of computer simulations in my own research.
- In 2003, I participated in an interview series, conducted by Rebecca Reiff (Hollins University, Roanoke, VA) on my personal view of the scientific process and its representation in high school and college science textbooks.

Advising

Faculty advisor for Virginia Tech Society of Physics Students (SPS) chapter, fall 2004 – spring 2005.

Diploma Students at TU München

Official supervisor Prof. Dr. F. Schwabl, I guided the students' research.

- Christian Baumgärtel, *Dipl.-Phys.*, TU München 1993
- Michael Bulenda, *Dipl.-Phys.*, TU München 1993
- Reinhard Eckl, *Dipl.-Phys.*, TU München 1991

Graduate Students at TU München

Official supervisor Prof. Dr. F. Schwabl, I guided the students' research.

- Bernhard A. Kaufmann, *Dr. rer. nat.*, TU München 1999
- Michael Bulenda, *Dr. rer. nat.*, TU München 1999

Graduate Student at Oxford

- Jaime E. Santos, Ph.D. student, University of Oxford, Ph.D. 1997

I was Jaime Santos' co-advisor (jointly with Dr. G. Schütz), while his regular advisor Dr. R. Stinchcombe was absent.

Undergraduate Thesis

- Beth A. Reid, *B.S. Senior Honors Thesis*, Virginia Tech 2003

  For her undergraduate research under my supervision, Beth received the American Society of Physics Students' *Outstanding Student Award for Undergraduate Research*. She was also a finalist for the American Physical Society's *LeRoy Apker Award for Undergraduate Physics Achievement*.

Undergraduate Research Students at Virginia Tech

- Samir F. Abboud, spring 2007
- Sean E. Cutchin, fall 2004 – spring 2005
- Stuart M. Bergeron, fall 2004 – spring 2005
- Greg I. Knight, fall 2004 – spring 2005
- George L. Daquila, summer 2004 – summer 2006
- Geoffrey K. Adams, spring – fall 2004, spring 2007
- Eric C. Spiegel, fall 2003 – summer 2004
- Mark J. Washenberger, fall 2002 – fall 2004, spring 2006
- Brian J. Donovan, summer 2002 – spring 2005
- Matthew L. Joyce, summer 2002 – spring 2003
- Jason C. Brunson, spring – fall 2002
- Beth A. Reid, fall 2001 – summer 2003
- Brad F. Habenicht, spring 2002
- James H. Roberts, spring 2001
- Seth A. Smith, fall 2000 – spring 2001

International Exchange Student at Virginia Tech

- Ulrich Dobramysl, IAESTE intern, fall 2006,
  from Johannes–Kepler University Linz, Austria

Graduate Students at Virginia Tech

- Ulrich Dobramysl, Ph.D. student (since fall 2009)
- Matthew T. Shimer, Ph.D. student (since fall 2007)
- Qian He, Ph.D. student (since fall 2007)
- George L. Daquila, Ph.D. student (since summer 2006)
- Matthew T. Raum, Ph. D. student (since summer 2006)
- Swapnil Jawkar, Ph.D. student (since spring 2006)
- Thananart Klongcheongsan, Ph.D. student, Virginia Tech, Ph.D. May 2009; now army intelligence officer in his native Thailand.
- Fiona Persaud, Ph.D. student (summer – fall 2005).
- Satheesh Angaiah, Ph.D. student in Electrical Engineering, Virginia Tech, research assistant 2004.
- Thomas J. Bullard, Ph.D. student, Virginia Tech, Ph.D. May 2005; now staff physicist at Wright Patterson Air Force Base, Ohio.
- Vamsi K. Akkineni, research student, Virginia Tech, M.S. 2001; obtained Ph.D. at the University of Illinois at Urbana-Champaign.

Postdoctoral Associates at Virginia Tech

In the condensed matter theory / statistical physics group at Virginia Tech, we jointly hire postdoctoral research associates to work with one or several faculty members: R. Kulkarni, K. Park, M. Pleimling, B. Schmittmann, R. Zia, and me. I have advised and collaborated with:

- Dr. Gunnar Prüßner, summer 2004 – fall 2005
- Dr. Mauro Mobilia, spring 2004 – summer 2005
- Dr. Ivan T. Georgiev, summer 2003 – fall 2005
- Dr. Manoj Gopalakrishnan, fall 2001 – spring 2004
- Dr. Oliviér Deloubrière, fall 2001 – summer 2003
- Dr. Jayajit Das, fall 2000 – spring 2002
- Dr. Jérôme Magnin, fall 2000 – summer 2001
- Dr. Timo Aspelmeier, fall 2000 – fall 2001
- Dr. Martin J. Howard, spring 1999 – fall 2000

Research and Publications

General Research Interests: Phase Transitions and Scaling in Equilibrium and Non-Equilibrium Condensed Matter Systems

- Structural phase transitions:
  Influence of defects; dynamics; central peak
  (Landau-Ginzburg theory; disordered systems; renormalization group).

- Dynamic critical behavior near equilibrium phase transitions:
  Universality classes; anomalies in the ordered phase of isotropic systems; crossover behavior; stability against non-equilibrium perturbations (Langevin equations; field theory; renormalization group).

- Phase transitions and scaling in systems far from equilibrium:
  Directed percolation; Burgers–Kardar-Parisi-Zhang equation; branching and annihilating random walks; diffusion-limited reactions; anomalous diffusion; driven diffusive systems
  (Master and Langevin equations; field theory; renormalization group; Monte Carlo simulations).

- Statistical mechanics of flux lines in superconductors:
  Mapping to boson quantum mechanics; influence of correlated disorder; phase diagrams; properties of the Bose glass phase; vortex transport and flux pinning; voltage and flux density noise
  (Path-integral description; Bogoliubov theory; numerical simulations).

- Applications of statistical physics to biological problems:
  Glassy properties of prokaryotic bacteria; diffusion-limited reactions on cell membranes; effects of spatial clustering of receptor molecules (lipid rafts); population dynamics and predator-prey interactions
  (Mean-field and Smoluchowski theory; Monte Carlo simulations).

Graduate Textbook

- "Critical Dynamics – A field theory approach to equilibrium and non-equilibrium scaling behavior", in preparation, under contract for publication with Cambridge University Press (target date fall 2011).
  Completed chapters are accessible on-line at:
  `http://www.phys.vt.edu/ tauber/utaeuber.html`.

Peer-Reviewed Original Research Publications

as of Oct. 2009: **1179** citations in 63 publications (average 18.7) listed in ISI Web of Science; Hirsch index 19.

[1] *W. Gasser and U.C.T.*, "Collective excitations of a layered electron gas in a strong magnetic field", Z. Phys. B – Condensed Matter **69**, 87 – 96 (1987).

[2] *F. Schwabl and U.C.T.*, "Elastic phase transitions in inhomogeneous media", Phase Transitions **34**, 69 – 103 (1991).

[3] *F. Schwabl and U.C.T.*, "Defect-induced condensation and central peak at structural transitions", Phys. Rev. B **43**, 11112 – 11135 (1991).

[4] *U.C.T. and F. Schwabl*, "Critical dynamics of the $O(n)$-symmetric relaxational models below the transition temperature", Phys. Rev. B **46**, 3337 – 3361 (1992).

[5] *U.C.T. and F. Schwabl*, "Influence of cubic and dipolar anisotropies on the static and dynamic coexistence anomalies of the time-dependent Ginzburg-Landau models", Phys. Rev. B **48**, 186 – 209 (1993) [cond-mat/9303044].

[6] *E. Frey, U.C.T., and F. Schwabl*, "Crossover from self-similar to self-affine structures in percolation", Europhys. Lett. **26**, 413 – 418 (1994) [cond-mat/9403093].

[7] *E. Frey, U.C.T., and F. Schwabl*, "Crossover from isotropic to directed percolation", Phys. Rev. E **49**, 5058 – 5072 (1994) [cond-mat/9404004].

[8] *E. Frey and U.C.T.*, "Two-loop renormalization group analysis of the Burgers–Kardar-Parisi-Zhang equation", Phys. Rev. E **50**, 1024 – 1045 (1994) [cond-mat/9406068]; **88** citations.

[9] *U.C.T., H. Dai, D.R. Nelson, and C.M. Lieber*, "Coulomb gap and correlated pinning in superconductors", Phys. Rev. Lett. **74**, 5132 – 5135 (1995) [cond-mat/9412021]; **26** citations.

[10] *U.C.T. and E. Frey*, "Reply to Comment on 'Two-loop renormalization group analysis of the Burgers–Kardar-Parisi-Zhang equation' " Phys. Rev. E **51**, 6319 – 6322 (1995).

[11] *U.C.T. and D.R. Nelson*, "Interactions and pinning energies in the Bose glass phase of vortices in superconductors", Phys. Rev. B **52**, 16106 – 16124 (1995) [cond-mat/9505024]; **37** citations.

[12] *E. Frey, U.C.T., and T. Hwa*, "Mode-coupling and renormalization group results for the noisy Burgers equation", Phys. Rev. E **53**, 4424 – 4438 (1996) [cond-mat/9601049]; **37** citations.

[13] *M. Bulenda, F. Schwabl, and U.C.T.*, "Defect-induced condensation and central peak at elastic phase transitions", Phys. Rev. B **54**, 6210 – 6221 (1996) [cond-mat/9606040].

[14] *J. Cardy and U.C.T.*, "Theory of branching and annihilating random walks", Phys. Rev. Lett. **77**, 4780 – 4783 (1996) [cond-mat/9609151]; **149** citations.

[15] *U.C.T. and D.R. Nelson*, "Superfluid bosons and flux liquids: disorder, thermal fluctuations, and finite-size effects", Phys. Rep. **289**, 157 – 233 (1997); Err.: Phys. Rep. **296**, 337 – 338 (1998) [cond-mat/9608057]; **36** citations.

[16] *U.C.T. and Z. Rácz*, "Critical behavior of $O(n)$-symmetric systems with reversible mode-coupling terms: stability against detailed-balance violation", Phys. Rev. E **55**, 4120 – 4136 (1997) [cond-mat/9610159].

[17] *C. Wengel and U.C.T.*, "Weakly pinned Bose glass vs Mott insulator phase in superconductors", Phys. Rev. Lett. **78**, 4845 – 4848 (1997) [cond-mat/9612093]; **32** citations.

[18] *M.J. Howard and U.C.T.*, " 'Real' vs 'imaginary' noise in diffusion-limited reactions", J. Phys. A: Math. Gen. **30**, 7721 – 7731 (1997) [cond-mat/9701069]; **87** citations.

[19] *J.L. Cardy and U.C.T.*, "Field theory of branching and annihilating random walks", J. Stat. Phys. **90**, 1 – 56 (1998) [cond-mat/9704160]; **122** citations.

[20] *U.C.T., M.J. Howard, and H. Hinrichsen*, "Multicritical behavior in coupled directed percolation processes", Phys. Rev. Lett. **80**, 2165 – 2168 (1998) [cond-mat/9709057]; **35** citations.

[21] *C. Wengel and U.C.T.*, "Properties of the Bose glass phase in irradiated superconductors near the matching field", Phys. Rev. B **58**, 6565 – 6579 (1998) [cond-mat/9801264]; **21** citations.

[22] *U.C.T., M.J. Howard, and H. Hinrichsen*, "Reply to Comment on 'Multicritical behavior in coupled directed percolation processes' ", Phys. Rev. Lett. **81**, 2179 (1998).

[23] *E. Frey, U.C.T., and H.K. Janssen*, "Scaling regimes and critical dimensions in the Kardar-Parisi-Zhang problem", Europhys. Lett. **47**, 14 – 20 (1999) [cond-mat/9807087]; **19** citations.

[24] *U.C.T., J.E. Santos, and Z. Rácz*, "Non-equilibrium critical behavior of O(n)-symmetric systems: effect of reversible mode-coupling terms and dynamical anisotropy", Eur. Phys. J. B **7**, 309 – 330 (1999); Err.: Eur. Phys. J. B **9**, 567 – 568 (1999) [cond-mat/9807207].

[25] *H.K. Janssen, U.C.T., and E. Frey*, "Exact results for the Kardar-Parisi-Zhang equation with spatially correlated noise", Eur. Phys. J. B **9**, 491 – 511 (1999) [cond-mat/9808325]; **22** citations.

[26] *Y.Y. Goldschmidt, H. Hinrichsen, M.J. Howard, and U.C.T.*, "Non-equilibrium critical behavior in unidirectionally coupled stochastic processes", Phys. Rev. E **59**, 6381 – 6408 (1999) [cond-mat/9809166]; **29** citations.

[27] *B.A. Kaufmann, F. Schwabl, and U.C.T.*, "Critical dynamics at incommensurate phase transitions and NMR relaxation experiments", Phys. Rev. B **59**, 11 226 – 11 243 (1999) [cond-mat/9811167].

[28] *M. Bulenda, U.C.T., and F. Schwabl*, "Dimensional crossover in dipolar magnetic layers", J. Phys. A: Math. Gen. **33**, 1 – 21 (2000) [cond-mat/9907029].

[29] *B. Schmittmann, H.K. Janssen, U.C.T., R.K.P. Zia, K.-t. Leung, and J.L. Cardy*, "Viability of competing field theories for the driven lattice gas", Phys. Rev. E **61**, 5977 – 5980 (2000) [cond-mat/9912286].

[30] *S. Trimper, U.C.T., and G.M. Schütz*, "Reaction-controlled diffusion", Phys. Rev. E **62**, 6071 – 6077 (2000) [cond-mat/0001387].

[31] *T. Aspelmeier, J. Magnin, W. Graupner, and U.C.T.,* "Random walks with imperfect trapping in the decoupled-ring approximation", Eur. Phys. J. B **28**, 441 – 450 (2002) [cond-mat/0107434].

[32] *U.C.T., B. Schmittmann, and R.K.P. Zia*, "Critical behaviour of driven bilayer systems: a field-theoretic renormalisation group study", J. Phys. A: Math. Gen. **34**, L583 – L589 (2001) [cond-mat/0108094].

[33] *U.C.T. and E. Frey*, "Universality classes in the anisotropic Kardar-Parisi-Zhang model", Europhys. Lett. **59**, 655 – 661 (2002) [cond-mat/0108306].

[34] *U.C.T., V.K. Akkineni, and J.E. Santos*, "Effects of violating detailed balance on critical dynamics", Phys. Rev. Lett. **88**, 045702 – 1-4 (2002) [cond-mat/0109433]; **20** citations.

[35] *J.E. Santos and U.C.T.*, "Non-equilibrium behavior at a liquid-gas critical point", Eur. Phys. J. B **28**, 423 – 440 (2002) [cond-mat/0204195].

[36] *O. Deloubrière, H.J. Hilhorst, and U.C.T.*, "Multispecies pair annihilation reactions", Phys. Rev. Lett. **89**, 250601 – 1-4 (2002) [cond-mat/0209471].

[37] *E. Shaw, D.R. Hill, N. Brittain, D.J. Wright, U.C.T., H. Marand, R.F. Helm, and M. Potts*, "Unusual water flux in the extracellular polysaccharide of the Cyanobacterium *Nostoc Commune*", Appl. Environ. Microbiol. **69**, 5679 – 5684 (2003).

[38] *B.A. Reid, U.C.T., and J.C. Brunson*, "Reaction-controlled diffusion: Monte Carlo simulations", Phys. Rev. E **68**, 046121 – 1-19 (2003) [cond-mat/0306014].

[39] *M. Gopalakrishnan, K. Forsten-Williams, and U.C.T.*, "Ligand-induced coupling versus receptor pre-association: cellular automaton simulations of FGF-2 binding", J. Theor. Biol. **227**, 239 – 251 (2004) [cond-mat/0308348].

[40] *V.K. Akkineni and U.C.T.*, "Non-equilibrium critical dynamics of the relaxational models C and D", Phys. Rev. E **69**, 036113 – 1-25 (2004) [cond-mat/0309562].

[41] *H.J. Hilhorst, O. Deloubrière, M.J. Washenberger, and U.C.T.*, "Segregation in diffusion-limited multispecies pair annihilation", J. Phys. A: Math. Gen. **37**, 7063 – 7093 (2004) [cond-mat/0403246].

[42] *H.K. Janssen, F. van Wijland, O. Deloubrière, and U.C.T.*, "Pair contact process with diffusion: failure of master equation field theory", Phys. Rev. E **70**, 056114 – 1-7 (2004) [cond-mat/0408064]; **20** citations.

[43] *M. Gopalakrishnan, K. Forsten-Williams, T.R. Cassino, L. Padro, T.E. Ryan, and U.C.T.*, "Ligand rebinding: self-consistent mean-field theory and numerical simulations applied to surface plasmon resonance studies", Eur. Biophys. J. **34**, 943 – 958 (2005) [q-bio.QM/0406004].

[44] *M. Gopalakrishnan, K. Forsten-Williams, M.A. Nugent, and U.C.T.*, "Effects of receptor clustering on ligand dissociation: Theory and simulations", Biophys. J. **89**, 3685 – 3700 (2005) [q-bio.SC/0407015].

[45] *H.J. Hilhorst, M.J. Washenberger, and U.C.T.*, "Symmetry and species segregation in diffusion-limited pair annihilation", J. Stat. Mech. P10002 – 1-19 (2004) [cond-mat/0409079].

[46] *M. Mobilia, I.T. Georgiev, and U.C.T.*, "Fluctuations and correlations in lattice models for predator–prey interaction", Phys. Rev. E **73** (Rapid Communications), 040903(R) – 1-4 (2006) [q-bio.PE/0508043]; **21** citations.

[47] *M. Mobilia, I.T. Georgiev, and U.C.T.*, "Phase transitions and spatio-temporal fluctuations in stochastic lattice Lotka–Volterra models", J. Stat. Phys. **128**, 447 – 483 (2007) [q-bio.PE/0512039].

[48] *M.J. Washenberger, M. Mobilia, and U.C.T.*, "Influence of local carrying capacity restrictions on stochastic predator–prey models", J. Phys. Condens. Matter **19**, 065139 – 1-14 (2007) [cond-mat/0606809].

[49] *V. Lecomte, U.C.T., and F. van Wijland*, "Current distribution in systems with anomalous diffusion: renormalisation group approach", J. Phys. A: Math. Theor. **40**, 1447 – 1465 (2007) [cond-mat/0611265].

[50] *T.J. Bullard, J. Das, G.L. Daquila, and U.C.T.*, "Vortex washboard voltage noise in type-II superconductors", Eur. Phys. J. B **65**, 469 – 484 (2008) [cond-mat/0511509].

[51] *U. Dobramysl and U.C.T.*, "Spatial variability enhances species fitness in stochastic predator–prey interactions", Phys. Rev. Lett. **101**, 258102 – 1-4 (2008) [arXiv:0804.4127].

[52] *T. Klongcheongsan, T.J. Bullard, and U.C.T.*, "Nonequilibrium steady states of driven magnetic flux lines in disordered type-II superconductors", submitted to Supercond. Sci. Technol. (2009) [arXiv:0911.4066].

Reviews (see also Refs. [15], [60], [61], [63], [65], [66])

[53] *F. Schwabl and U.C.T.*, "Continuous elastic phase transitions in pure and disordered crystals", Phil. Trans. R. Soc. Lond. A **354**, 2847 – 2873 (1996) [cond-mat/9607028].

[54] *H.K. Janssen and U.C.T.*, "The field theory approach to percolation processes", Ann. Phys. (NY) **315**, 147 – 192 (2005) [cond-mat/0409670]; **29** citations.

[55] *U.C.T., M.J. Howard, and B.P. Vollmayr-Lee*, "Applications of field-theoretic renormalization group methods to reaction-diffusion problems", J. Phys. A: Math. Gen. **38**, R79 – R131 (2005) [cond-mat/0501678]; **61** citations.

Contributions to Conference and Summer School Proceedings

[56] *W. Gasser and U.C.T.*, "Spin waves of a layered ferromagnetic electron gas and of a paramagnetic electron gas in a strong magnetic field", in: "ICM 88", D. Givord (Ed.), Proceedings of the International Conference on Magnetism, Part II, J. Phys. (Paris) **49**, C 8 — 1611 – 1612 (1988).

[57] *F. Schwabl and U.C.T.*, "Local condensation at elastic phase transitions", in: "Phonons 89", S. Hunklinger, W. Ludwig, and G. Weiss (Eds.), Proceedings of the 3rd International Conference on Phonon Physics and the 6th International Conference on Phonon Scattering in Condensed Matter, Vol. **2** (World Scientific), 1138 – 1140 (1990).

[58] *U.C.T.*, "Localized flux lines and the Bose glass", in: "Complex Behaviour of Glassy Systems", M. Rubí and C. Pérez-Vicente (Eds.), Proceedings of the XIV Sitges Conference (Springer), 298 – 307 (1997) [cond-mat/9607109].

[59] *J. Das, T.J. Bullard, and U.C.T.*, "Vortex transport and voltage noise in disordered superconductors", in: "Statphys-Kolkata IV", Proceedings of the International Conference on Statistical Physics Statphys-Kolkata IV, Physica A **318**, 48 – 54 (2003) [cond-mat/0205023].

[60] *U.C.T.*, "Dynamic phase transitions in diffusion-limited reactions", in: "RG02", Proceedings of the 5th International Conference on Renormalization Group 2002, Acta Physica Slovaca **52**, 505 – 513 (2002) [cond-mat/0205327].

[61] *U.C.T.*, "Scale invariance and dynamic phase transitions in diffusion-limited reactions", in: "Advances in Solid State Physics", B. Kramer (Ed.), Vol. **43** (Springer-Verlag Berlin), 659 – 675 (2003) [cond-mat/0304065]; **21** citations.

[62] *M. Mobilia, I.T. Georgiev, and U.C.T.*, *Spatial stochastic predator–prey models*, Banach Center Publ. **80**, ed. J. Miekisz, Institute of Mathematics, Polish Academy of Sciences, Warsaw, 253 – 257 (2008) [q-bio.PE/0609039].

Book Chapters

[63] *F. Schwabl and U.C.T.*, "Phase transitions: renormalization and scaling", in: "Encyclopedia of Applied Physics", G.L. Trigg (Ed.), Vol. **13** (VCH Publishers), 343 – 371 (1995).

[64] *T.J. Bullard, J. Das, and U.C.T.* "Dynamics of magnetic flux lines in the presence of correlated disorder", in: "Trends in Superconductivity Research", P.S. Lewis (Ed.) (Nova Science Publishers), 63 – 72 (2004) [cond-mat/0305061].

[65] *U.C.T.*, "Field theory approaches to nonequilibrium dynamics", in: Proceedings of the International Summer School "Ageing and the Glass Transition", Luxembourg, M. Henkel, M. Pleimling, and R. Sanctuary (Eds.), Lecture Notes in Physics **716** (Springer-Verlag Berlin, 2007), Chap. 7, 295 – 348 [cond-mat/0511743].

[66] *U.C.T.*, "Field-theoretic methods", in: "Encyclopedia of Complexity and System Science", R.A. Meyers (Ed.), 3360 – 3374 (Springer-Verlag New York, 2009) [arXiv:0707.0794]

Miscellaneous

[67] Book review of *W.D. McComb*, "Renormalization Methods: A Guide for Beginners", Physics Today June 2005, 62 – 63 (2005).

[68] *Nachruf* (obituary) for Franz Schwabl, with E. Frey and B. Drossel, to appear in Physik Journal (2009); shortened English version to appear as a Death Notice in Physics Today (2009).

Theses

- "*Elastische Phasenübergänge zweiter Ordnung in inhomogenen Medien* (Second-order elastic phase transitions in inhomogeneous media)", Diploma thesis, TU München (1988).
- "*Koexistenzanomalien in der Dynamik isotroper Systeme* (Coexistence anomalies in the dynamics of isotropic systems)", Dissertation, TU München (1992).
- "*Phasenübergänge und Skalenverhalten in Nichtgleichgewichtssystemen* (Phase transitions and scaling behavior in non-equilibrium systems)", Habilitation thesis, TU München (1998).

Invited Colloquia and Seminar Talks

- "Coexistence anomalies in the dynamics of isotropic systems", Theoretical physics colloquium, TU München, December 1991.
- "Kinetic roughening of growing surfaces — New RG results", MSC extended dynamics seminar, Cornell University, Ithaca (NY), July 1994.
- "Correlated pinning of flux lines to columnar defects and transport in the Bose glass phase",
  - NFL seminar series, Massachusetts Institute of Technology, Cambridge (MA), April 1995;
  - Special theory seminar, Cornell University, Ithaca (NY), May 1995;
  - Condensed matter theory seminar, Harvard University, Cambridge (MA), May 1995.
- "Localized flux lines and the Bose glass",
  - Condensed matter theory seminar, University of Oxford (U.K.), November 1995;
  - Theoretical physics seminar, University of Manchester (U.K.), February 1996;
  - Superconductivity seminar, Imperial College London (U.K.), March 1996;
  - Condensed matter theory seminar, Birmingham University (U.K.), March 1996;
  - Condensed matter seminar, University of Southampton (U.K.), May 1996;
  - Seminar, Johns Hopkins University, Baltimore, MD, March 1998;
  - Colloquium, Virginia Tech, Blacksburg, VA, March 1998;
  - Seminar, University of Rochester, Rochester, NY, April 1998;
  - Solid state seminar, University of Virginia, Charlottesville, VA, September 1999.
- "Renormalized field theory for branching and annihilating random walks", Statistical physics seminar, Eötvös University Budapest (Hungary), April 1996.

- "Columnar defects and localized flux lines",
  - Superconductivity seminar, Universität Hamburg (Germany), October 1996;
  - Interdisciplinary solid state physics seminar, TU München (Germany), May 1998;
  - SFB seminar Universität-GHS Essen (Germany), November 1998.
- "Critical behavior of the non-equilibrium SSS model", T34 Seminar, TU München (Germany), January 1997.
- "Dynamic phase transitions in diffusion-limited chemical reactions",
  - Theoretical physics colloquium, TU München (Germany), January 1997;
  - SFB seminar, Heinrich-Heine-Universität Düsseldorf (Germany), May 1997;
  - IFF theory seminar, Forschungszentrum Jülich (Germany), May 1997;
  - Statistical physics / condensed matter theory seminar, Georg-August-Universität Göttingen (Germany), June 1997.
- "Flux lines in superconductors — or How to pin spaghetti", Linacre seminar, Linacre College, Oxford (U.K.), March 1997.
- "Weakly pinned Bose glass vs. Mott insulator phase in superconductors", Condensed matter theory family bag lunch meeting, Harvard University, Cambridge, MA, March 1998.
- "Branching and annihilating random walks",
  - Condensed matter theory seminar, Harvard University, Cambridge, MA, March 1998;
  - University of Rochester, Rochester, NY, April 1998.
- "Dynamic phase transitions in diffusion-limited reactions",
  - Statistical physics seminar, Martin-Luther-Universität Halle (Germany), May 1998;
  - Condensed matter theory seminar, Harvard University, Cambridge, MA, October 2001.

- "On the physics of dinosaurs",
  - Habilitation colloquium, TU München, July 1999;
  - Colloquium, Virginia Tech, Blacksburg, VA, September 1999;
  - Colloquium, University of Iowa, Iowa City, IA, November 1999.
- "Driven interfaces, Burgers hydrodynamics, directed polymers: Field theory approach to the KPZ problem",
  - Solid state lunch seminar, University of Iowa, Iowa City, IA, November 1999;
  - Condensed matter seminar, University of Pittsburgh, Pittsburgh, PA, December 2000;
  - Statistical physics seminar, Martin-Luther-Universität Halle (Germany), June 2001.
- "Flux lines and columnar defects in high-T_c superconductors",
  - Colloquium, Eberhard-Karls-Universität Tübingen (Germany), June 2000.
  - Soft Matter Seminar, Arizona State University, Tempe, AZ, April 2004.
- "Critical dynamics at the liquid-gas phase transition (binary liquids): Influence of non-equilibrium perturbations",
  T34 Seminar, TU München (Germany), July 2000.
- "Critical dynamics: Influence of non-equilibrium perturbations",
  Theory colloquium, Universität-GHS Essen (Germany), June 2001.
- "Scale invariance and phase transitions in diffusion-limited reactions",
  - Colloquium, Virginia Tech, Blacksburg, VA, February 2003.
  - Colloquium, University of Missouri-Rolla, Rolla, MO, January 2004.
- "Multispecies pair annihilation processes",
  - Seminar, Eberhard-Karls-Universität Tübingen (Germany), June 2003;

  - Statistical physics seminar, Martin-Luther-Universität Halle (Germany), July 2003.

- "Fluctuations and correlations in stochastic lattice models for predator–prey interactions",

  - Theoretical Physics Seminar, Rudolf Peierls Centre for Theoretical Physics, University of Oxford (U.K.), October 2005;
  - Condensed Matter Theory Seminar, Arnold Sommerfeld Center for Theoretical Physics, Ludwig-Maximilians-Universität München (Germany), December 2005;
  - Cambridge Computer Modelling in Biology Group Seminar, Cambridge University, Cambridge (U.K.), March 2006;
  - Science of Complex Networks Seminar, Network Dynamics and Simulation Science Laboratory, Virginia Bioinformatics Institute, Blacksburg, VA, June 2006.

- "Current distribution in driven diffusive systems: field theory approach",
  The Forum Seminar, Rudolf Peierls Centre for Theoretical Physics, University of Oxford (U.K.), November 2005.

- Special Sommerfeld Lectures "Diffusion-limited reactions and Fock representation of interacting particle systems",
  two lectures, Arnold Sommerfeld Center for Theoretical Physics, Ludwig-Maximilians-Universität München (Germany), December 2005.

- "Fluctuations and correlations in multispecies pair annihilation processes",
  Seminar, University of Minnesota, Minneapolis, MN, October 2006.

- "Erratic rabbits and gambling foxes: stochastic predator-prey models",
  Colloquium, Virginia Tech, Blacksburg, VA, August 2007.

Invited Conference Talks

- "Localized flux lines and the Bose glass",
  MECO 21, "21st Seminar of the Middle-European Cooperation in Statistical Physics", Bled (Slovenia), April 1996.

- "Field theory of branching and annihilating random walks",
  KFKI Workshop "Recent Developments in Non-Equilibrium Statistical Physics", KFKI Budapest (Hungary), September 1997.

- "The Coulomb glass problem",
  Dagstuhl seminar "Algorithmic Techniques in Physics",
  Schloss Dagstuhl, Wadern (Germany), December 1997.

- "Dynamic phase transitions in diffusion-limited reactions",

  - MECO 23, "23rd Seminar of the Middle-European Cooperation in Statistical Physics", Trieste (Italy), April 1998;
  - RG02, "5th International Conference Renormalization Group 02", Tatranska Strba (Slovakia), March 2002.

- "Scale invariance and dynamic phase transitions in diffusion-limited reactions",
  German Physical Society (DPG) Spring Meeting, Dresden (Germany), March 2003.

- "Multispecies pair annihilation",
  Seminar "Non-Equilibrium Statistical Physics in Low Dimensions and Reaction Diffusion Systems", Max-Planck-Institut für Physik komplexer Systeme, Dresden (Germany), October 2003.

- "Fluctuations in biological systems: population dynamics and receptor-ligand interactions",
  WOMT04, NSF Workshop on "Opportunities in Materials Theory", Arlington, VA, October 2004.

- "The role of stochastic fluctuations and spatio-temporal correlations in lattice models for predator–prey interactions",
  Workshop on "Applications of Methods of Stochastic Systems and Statistical Physics in Biology, University of Notre Dame, Notre Dame, IN, October 2005.

- "Fluctuations and correlations in multispecies pair annihilation processes",
  ASC Workshop on "Nonequilibrium Phenomena in Classical and Quantum Systems, Arnold Sommerfeld Center for Theoretical Physics, Ludwig-Maximilians-Universität München (Germany), October 2006.

- "Current distribution in driven diffusive systems: field theory approach",
  97th Statistical Mechanics Conference, Rutgers, NJ, May 2007.

- "Stochastic predator-prey models: population oscillations, spatial correlations, and the effect of randomized rates",

  - Seminar "Many-Body Systems Far From Equilibrium: Fluctuations, Slow Dynamics and Long-Range Interactions", Max-Planck-Institut für Physik komplexer Systeme, Dresden (Germany), February 2009.
  - EPSCR Wosrkshop "Non-equilibrium Dynamics of Spatially Extended Interacting Particle Systems", Warwick, U.K., January 2010.

- "Stochastic predator–prey models: Spatial variability enhances species fitness",
  APS March Meeting, Pittsburgh, PA, March 2009.

Main Conference Talks

- "Influence of defects on the statics and dynamics of structural phase transitions",

  DFG meeting "Magnetic Resonance and the Investigation of Structures in and on Solids", Hirschegg (Germany), September 1990.

- "Defect-induced condensation and central peak at structural phase transitions",

  Neutron Research Group meeting, Bad Schandau
  (Germany), April 1992.

- "Structural phase transitions with randomly distributed defects: Local condensation, inhomogeneous order parameter, and central peak",

  NATO Advanced Study Institute "Phase Transitions and Relaxation in Systems with Competing Energy Scales", Geilo (Norway), April 1993.

- "Localized flux lines and the Bose glass",

  XIV Sitges Conference "Complex Behaviour of Glassy Systems", Sitges-Barcelona (Spain), June 1996.

- "Theory of branching and annihilating random walks",

  Workshop "Dynamics of Non-Equilibrium Systems", International Centre for Theoretical Physics Trieste (Italy), August 1996.

- "Surprises with anisotropic variants of the KPZ equation",

  Eötvös School and Workshop "Phase Separation in Physics, Chemistry, and Biology", Budapest (Hungary), July 2000.

- "Fluctuations in biological systems", NSF Workshop on the "Role of Theory in Biological Physics and Materials", Tempe, AZ, May 2004.

Lectures at Summer Schools and Workshops

- "Field theory approaches to nonequilibrium dynamics", two lectures, Summer school "Ageing and the Glass Transition", Luxembourg (Luxembourg), September 2005.

- "Field-theoretic approaches to interacting particle systems", three lectures, Workshop "Non-Equilibrium Dynamics of Interacting Particle Systems" within the program "Principles of Non-Equilibrium Dynamics", Isaac Newton Institute for Mathematical Sciences, Cambridge (U.K.), April 2006.

- "Fluctuations and correlations in complex systems — An introduction to stochastic nonlinear dynamics", five lectures and student project, Second Annual French Complex Systems Summer School, Institut des Systèmes Complexes (ISC), École Normale Supérieure Paris (France), August 2008.

Contributed Conference Talks and Posters

- DPG Spring Meeting, Münster (Germany), March 1987.
- ICM 88, "International Conference on Magnetism", Paris (France), July 1988.
- PHONONS 89, "3rd International Conference on Phonon Physics and 6th International Conference on Phonon Scattering in Condensed Matter", Heidelberg (Germany), August 1989.
- DPG Spring Meeting, Regensburg (Germany), March 1990.
- MECO 18, "18th Seminar of the Middle-European Cooperation in Statistical Physics", Duisburg (Germany), March 1991.
- DPG Spring Meeting, Münster (Germany), April 1991.
- XXIst European Symposium "Dynamical Properties of Solids", Autrans (France), September 1991.
- DPG Spring Meeting, Regensburg (Germany), March 1992.
- STATPHYS 18, "18th IUPAP International Conference on Statistical Physics", Berlin (Germany), August 1992.
- 13th General Conference of the Condensed Matter Division of the EPS and DPG Spring Meeting, Regensburg (Germany), March 1993.
- Neutron Research Group meeting, Benediktbeuren (Germany), October 1993.
- APS March Meeting, Pittsburgh, PA, March 1994.
- MECO 19, "19th Seminar of the Middle-European Cooperation in Statistical Physics", Smolenice (Poland), April 1994.
- MRS Fall Meeting, Boston, MA, November 1994.
- DPG Spring Meeting, Berlin (Germany), March 1995.
- Workshop "Vortex Dynamics", Lake Forest, IL, June 1995.
- Gordon Research Conference "Condensed Matter Physics", Wolfeboro, NH, July 1995.

- DPG Spring Meeting, Regensburg (Germany), March 1996.
- 3rd Liquid Matter Conference, Norwich (U.K.), July 1996.
- International Workshop "Vortex Matter in High-Temperature Superconductors", Ascona (Switzerland), June 1997.
- International Summer School "Fundamental Problems in Statistical Mechanics IX", Altenberg (Germany), August 1997.
- Adriatico Research Conference "The Dynamics of Complexity", International Centre for Theoretical Physics Trieste (Italy), August 1997.
- DPG Spring Meeting, Regensburg (Germany), March 1998.
- Satellite Meeting to STATPHYS 20, "Applications of Field Theory to Statistical Physics: Soft-Condensed Matter, Non-Equilibrium and Boundary Critical Phenomena", Bonn (Germany), July 1998.
- DPG Physics School "Collective Transport in Disordered Media", Physikzentrum Bad Honnef (Germany), September 1998.
- MECO 24, "24th Seminar of the Middle-European Cooperation in Statistical Physics", Wittenberg (Germany), March 1999.
- DPG Spring Meeting, Münster (Germany), March 1999.
- APS Centennial March Meeting, Atlanta, GA, March 1999.
- 2nd Annual Greater Boston Area Statistical Mechanics Meeting, Brandeis University, Waltham, MA, October 2000.
- 2001 Boulder School "Condensed Matter and Materials Physics", Boulder, CO, July 2001.
- 3rd Annual Greater Boston Area Statistical Mechanics Meeting, Brandeis University, Waltham, MA, October 2001.
- STATPHYS-Kolkata IV, "International Conference on Statistical Physics", Kolkata (India), January 2002.
- DPG Spring Meeting, Regensburg (Germany), March 2002.
- APS March Meeting, Indianapolis, IN, March 2002.
- 88th Statistical Mechanics Conference, Rutgers, NJ, December 2002.

- APS March Meeting, Austin, TX, March 2003.
- International Conference of Physics Students (ICPS), Odense (Denmark), August 2003.
- STATPHYS 22, "22nd IUPAP International Conference on Statistical Physics", Bangalore (India), July 2004.
- APS March Meeting, Los Angeles, CA, March 2005.
- ECMTB 05, "European Conference on Mathematical and Theoretical Biology", Dresden (Germany), July 2005.
- 94th Statistical Mechanics Conference, Rutgers, NJ, December 2005.
- 21st General Conference of the Condensed Matter Division of the EPS and DPG Spring Meeting, Dresden (Germany), March 2006.
- DPG Spring Meeting, Regensburg (Germany), March 2007.
- 97th Statistical Mechanics Conference, Rutgers, NJ, May 2007.
- DPG Spring Meeting, Berlin (Germany), February 2008.
- APS March Meeting, New Orleans, LO, March 2008.
- MECO 23, "23rd Seminar of the Middle-European Cooperation in Statistical Physics", Puchberg/Wels, Austria, April 2008.
- Symposium "Complexity in Materials far from Equilibrium", Blacksburg, VA, May 2008.
- APS March Meeting, Pittsburgh, PA, March 2009.
- Boulder School for Condensed Matter and Materials Physics "Nonequilibrium Statistical Mechanics: Fundamental Problems and Applications", Boulder, CO, July 2009.

Conference Organization

- Co-organizer, with B. Schmittmann (Virginia Tech; main organizer), P.A. Rikvold (Florida State University), and B. Chakraborty (Brandeis University) of International Symposium "Biological systems and soft materials: Future directions in statistical physics — A symposium on the interface of statistical physics, biology, and chemistry", Department of Physics, Virginia Tech, Blacksburg, VA, March 6–7, 2004.

- Co-organizer, with R. Folk (Johannes-Kepler University Linz, Austria), of Symposium "Renormalization and Scaling", German Physical Society (DPG) Spring Meeting, Berlin (Germany), March 5, 2005.

- Co-organizer, with B. Schmittmann (Virginia Tech), of Focus Session "Transport and Kinetics in Biological Systems", American Physical Society (APS) March Meeting, Los Angeles, CA, March 24, 2005.

- Co-organizer, with M. Pleimling and B. Schmittmann (Virginia Tech), of Focus Session "Models and Materials far from Equilibrium", American Physical Society (APS) March Meeting, New Orleans, LO, March 12, 2008.

- Co-organizer, with H. Marand, K. Park, M. Pleimling, and B. Schmittmann (Virginia Tech), of Symposium "Complexity in Materials far from Equilibrium", Department of Physics, Virginia Tech, Blacksburg, Virginia, May 14–16, 2008.

- Co-organizer, with R. Kulkarni (Virginia Tech), of Focus Session "Stochastic Processes in Biological Systems", American Physical Society (APS) March Meeting, Pittsburgh, PA, March 18, 2009.

- Co-organizer, with M. Pleimling, B. Schmittmann (Virginia Tech), and Ching-Hwa Kiang (Rice University), of the 2009 Boulder School for Condensed Matter and Materials Physics "Nonequilibrium Statistical Mechanics: Fundamental Problems and Applications", July 6–24, 2009.

Journal Editorial and Advisory Boards

- Editorial Board: Physics Research International (founded as Research Letters in Physics), since Sep. 2007

- Advisory Panel:
  Journal of Physics A: Mathematical and Theoretical, since Dec. 2007

Journal Referee

Selected for inaugural group of 534 *Outstanding Referees* (out of 42,000) by the American Physical Society Journals, January 2008.

Regularly:

- Physical Review Letters
- The Physical Review B
- The Physical Review E
- Europhysics Letters (EPL)
- The European Physical Journal B
- Journal of Physics A: Mathematical and Theoretical
- Journal of Statistical Mechanics: Theory and Experiment
- Physics Letters A

Occasionally:

- Proceedings of the National Academy of Sciences
- Journal of Statistical Physics
- Journal of Mathematical Physics
- Bulletin of Mathematical Biology
- Biophysical Journal
- Journal of Physics: Condensed Matter
- Superconductor Science and Technology
- Nuclear Physics B
- Physica A
- International Journal of Modern Physics B
- Acta Applicanda Mathematicae
- Acta Physica Slovaca

Reviews:

- Mathematical Reviews

External Funding at Virginia Tech

- National Science Foundation research grant (NSF DMR-0075725) "Phase transitions and scaling in non-equilibrium systems", with REU (research experience for undergraduates) supplement, May 2000 – July 2003, total volume $ 170,000.
- Bank of America Jeffress Memorial Trust research grant (J-594) "Scaling and universality in non-equilibrium systems", January 2001 – December 2003, total volume $ 49,232.
- National Science Foundation research grant (NSF DMR-0308548) "Scale invariance and dynamic phase transitions in non-equilibrium systems", July 2003 – June 2007, total volume $ 240,000.
- National Science Foundation conference grant (DMR-0405057) "Symposium: Biological systems and soft materials: Future directions in statistical physics", Co-PI with B. Schmittmann, February 2004, US $ 8,000.
- National Science Foundation conference grant (DMR-0757181) "Complexity in materials far from equilibrium Conference", PI, with M. Pleimling, May 2008, US $ 5,200.
- Department of Energy research grant (BES DE-FG02-09ER46613) "Driven magnetic flux lines in disordered superconductors: Relaxation towards equilibrium and nonequilibrium stationary states", PI, with M. Pleimling, August 2009 – August 2012, total volume $ 450,000.

External Funding as Postdoctoral Researcher

- Postdoctoral Fellowship from the *Deutsche Forschungsgemeinschaft* (DFG Ta 177/1–1,2), 1993 – 1995.
- European Commission Training and Mobility of Researchers (TMR) Marie Curie Fellowship (EU Contract ERB FMBI-CT96-1189), 1996 – 1997.
- *Habilitation* Fellowship from the *Deutsche Forschungsgemeinschaft* and travel grant (DFG Ta 177/2-1,2), 1997 – 1998.

Professional Societies Membership

- American Physical Society (APS)
- European Physical Society (EPS)
- Institute of Physics (IOP, U.K.)
- *Deutsche Physikalische Gesellschaft* (German Physical Society, DPG)
- American Association of University Professors (AAUP)
- *Deutscher Hochschulverband* (German University Faculty Society, DHV)