

## BEATE SCHMITTMANN

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### Education

- 1981, Diplom in Physics, Prof. J. Schnakenberg, RWTH Aachen, Germany
- 1984, PhD in Physics, Profs. D.J. Wallace and A.D. Bruce, University of Edinburgh, UK

### Professional Positions

- 2006-present, Chair, Physics Department, Virginia Tech
- 1997-present, Professor, Physics Department Virginia Tech
- 1991-1997, Associate Professor, Physics Department, Virginia Tech (tenured since 1994)
- 1990-1991, Visiting Assistant Professor, Physics Department, Virginia Tech
- 1986-1991, Research Assistant Professor, Physics Department, Universität Düsseldorf, Germany
- 1984-1986, Research Associate, Physics Department, Universität Düsseldorf, Germany

### Honors and Awards

- 2004, Fellow, American Physical Society
- 1995, “Pro Renovanda Cultura Hungarica” Fellow, Hungarian Ministry of Science
- 1986, Postdoctoral Travel Award, Deutsche Forschungsgemeinschaft (DFG).
- 1982-84, Edinburgh University Postgraduate Scholarship Award
- 1982-84, Postgraduate Study Award, German National Scholarship Foundation (GNSF)
- 1981-82, Foreign Study Award, GNSF
- 1978, Elected member of the GNSF (supports top 0.5 - 1.0% of German undergraduates).

### Relevant Experience

Prof. Schmittmann’s research targets one of the most important unsolved problems in condensed matter physics: the characterization and understanding of complex behavior in interacting many-particle systems driven *far from thermal equilibrium*. Such phenomena are ubiquitous in the biological, physical, and engineering sciences, so that progress in this area is not only of fundamental interest but will have broad, interdisciplinary impact. Dr. Schmittmann focuses on minimal models, with the goal of identifying generic behaviors, such as novel phase transitions, types of pattern formation, anomalous correlations in different phases, etc. Recently, she has worked increasingly on application-driven studies, such as protein synthesis from mRNA and gas diffusion through aged polymer films. She uses a broad range of techniques, from Monte Carlo simulations at one end of the spectrum to exact solutions at the other.

<b>Publications:</b>	Over 100 refereed articles, proceedings, reviews, etc.
<b>Lectures and presentations:</b>	Over 100 invited lectures in 11 countries; ~ 60 contributed talks.
<b>Editorial Boards:</b>	Journal of Statistical Physics (1997-99), Physical Review E (2004-09); American Journal of Physics (2008-10).
<b>Professional Service:</b>	Chair-Elect, Vice-Chair, Chair Group for Statistical and Nonlinear Physics (2007-10)
<b>Students and Postdocs:</b>	20 postdocs, 9 graduate and 19 undergraduate students
<b>Funding:</b>	NSF, NATO, Jeffress Foundation, DFG (cumulative ~ 2.5 M)

### **Selected publications (1775 citations total, as of February 2007):**

1. Field theory of critical behaviour in driven diffusive systems. H. K. Janssen and B. Schmittmann, *Zeitschrift für Physik B64*, 503-514 (1986). (114 citations)
2. New universal short-time scaling behaviour of critical relaxation. H. K. Janssen, B. Schaub and B. Schmittmann, *Zeitschrift für Physik B73*, 539-550 (1989). (241 citations)
3. Critical behavior of the driven diffusive lattice gas (*Invited review article*). B. Schmittmann, *International Journal of Modern Physics B4*, 2269-2306 (1990). (66 citations)
4. Fixed point Hamiltonian for a randomly driven diffusive system. B. Schmittmann, *Europhysics Letters* 24, 109-114 (1993). (40 citations)
5. Critical dynamics of non-conserved Ising-like systems. K.E. Bassler and B. Schmittmann, *Physical Review Letters* 73, 3343-3346 (1994). (22 citations)
6. *Statistical mechanics of driven diffusive systems*. B. Schmittmann and R.K.P. Zia, Vol 17 of *Phase Transitions and Critical Phenomena*, eds. C. Domb and J.L. Lebowitz (Academic Press, N.Y. 1995), 220 pp. (384 citations)
7. Long-Range order in a quasi one-dimensional non-equilibrium three-state lattice gas. G. Korniss, B. Schmittmann and R.K.P. Zia, *Europhysics Letters* 45, 431-435 (1999). (20 citations)
8. Stationary correlations for a far-from-equilibrium spin chain. B. Schmittmann and F. Schmüser, *Physical Review E* 66, 0461301-7 (2002). (5 citations)
9. Coarsening dynamics of a quasi one-dimensional driven lattice gas. J.T. Metzger, B. Schmittmann and R.K.P. Zia, *Europhysics Letters* 58, 653-659 (2002) (10 citations)
10. Effects of cooling rate and physical aging on the gas transport properties in polycarbonate. C. M. Laot, E. Marand, B. Schmittmann, R. K.P. Zia, *Macromolecules* 36, 8673-8684 (2003) (4 citations)

### **Synergistic Activities**

- Developer and coordinator of new conceptual physics course: Highlights of Contemporary Physics: Paradigms of 20<sup>th</sup> century physics and their implications for society. This course satisfies a general studies requirement and is suitable for all majors on campus; it is also offered on-line for science teachers.
- Virginia Tech Advance Professor. Co-PI and member of leadership team of the Virginia Tech Advance grant, funded by NSF (2003-2008): "Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers".
- Senior Fellow at the Sybille-Merian International Science Center (ISC), Universität Duisburg-Essen, Germany (November 2002 and November 2003).
- Organizer of three regional and one international symposia/workshops on various topics in nonequilibrium statistical mechanics
- Referee for a wide range of international journals and funding agencies
- Invited lecturer at numerous international conferences, workshops and summer schools