

Peter Hinow

CONTACT INFORMATION Institute for Mathematics and its Applications *Office:* (612) 626-1307
University of Minnesota *Cell:* (615) 715-2208
114 Lind Hall *Fax:* (612) 626-7370
Minneapolis, MN 55455, USA *E-mail:*
hinow@ima.umn.edu

WWW: <http://www.ima.umn.edu/~hinow>

RESEARCH INTERESTS Applied Mathematics, Partial Differential Equations, Mathematical Biology

EDUCATION **Vanderbilt University**, Nashville TN, USA

Doctor of Philosophy, Mathematics, August 2007

- August 2002 – August 2007: graduate student of Mathematics at Vanderbilt University
- Thesis: Partial Differential Equation Models for Intranuclear Diffusion, Inverse Problems in Nanobiology and Cell Cycle Specific Effects of Anti-cancer Drugs
- Advisor: Professor Glenn F. Webb, PhD

Dresden University of Technology, Dresden, Germany

Diplom–Mathematiker (Dipl.–Math.), October 2000

- October 1995 – October 2000: student of Mathematics at the Dresden University of Technology
- Thesis: Moment Inequalities and Central Limit Properties of Isotropic Convex Bodies
- Advisors: Prof. Dr. Jürgen Voigt, Prof. Dr. Ulrich Brehm
- graduated with distinction (“mit Auszeichnung”)

University of Wisconsin, Milwaukee WI, USA

- August 1999 – December 1999 and January 2002 – July 2002: visiting graduate student

PROFESSIONAL AND TEACHING EXPERIENCE

- September 2007 – present: postdoctoral associate at the Institute for Mathematics and its Applications, University of Minnesota; currently teaching Multivariable Calculus
- January 2002 – April 2007: graduate teaching assistant at University of Wisconsin – Milwaukee and Vanderbilt University, taught Intermediate Algebra and Calculus to diverse student bodies
- February 2001 – December 2001: Assistant research and development with Deutsche Telekom AG, Darmstadt, Germany, simulation and evaluation of telecommunication and Internet Protocol (IP) networks

- August 1998 – October 1998: Internship with Siemens AG, Munich, Germany, numerical simulation of Combined Cycle Power Plant components

PUBLICATIONS

A continuous model for microtubule dynamics with collapse, rescue and nucleation (with V. Rezania and J. A. Tuszyński), *Phys. Rev. E* *to appear*, [arXiv:0811.2245](#)

Predicting the drug release kinetics of matrix tablets (with B. Bäumer, L. Chatterjee, T. Rades, A. Radunskaya and I. Tucker), *Discr. Contin. Dyn. Sys. B* **12**:261–277 (2009), [arXiv:0810.5323](#)

A spatial model of tumor-host interaction: Application of chemotherapy (with P. Gerlee, L. J. McCawley, V. Quaranta, M. Ciobanu, S. Wang, J. M. Graham, B. P. Ayati, J. Claridge, K. R. Swanson, M. Loveless and A. R. A. Anderson), *Math. Biosci. Eng.* **6**:521–545 (2009), [arXiv:0810.1024](#)

Analysis of a model for transfer phenomena in biological populations (with P. Magal, F. Le Foll and G. F. Webb), *SIAM J. Appl. Math.* **70**:40–62 (2009)

A mathematical model quantifies proliferation and motility effects of TGF- β on cancer cells (with S. Wang, N. Bryce, A. M. Weaver, L. Estrada, C. L. Arteaga and G. F. Webb), *Comput. Math. Methods Med.* **10**:71–83 (2009), [arXiv:0710.5665](#)

A mathematical model separates quantitatively the cytostatic and cytotoxic effects of a HER2 tyrosine kinase inhibitor (with S. Wang, C. L. Arteaga and G. F. Webb), *Theor. Biol. Med. Model.* **4**:14 (2007)

Molecular seismology: An inverse problem in nanobiology (with E. M. Boczko), *J. Theor. Biol.* **246**:145–158 (2007)

The DNA binding activity of p53 displays reaction-diffusion kinetics. (with C. Rogers, C. E. Barbieri, J. A. Pietenpol, A. K. Kenworthy and E. DiBenedetto), *Biophys. J.* **91**:330–342 (2006)

Moment inequalities and central limit properties of isotropic convex bodies (with U. Brehm, H. Vogt, and J. Voigt), *Math. Z.* **240**:37–51 (2002)

PAPERS IN PREPARATION, CONTRIBUTIONS

Structured and unstructured continuous models for *Wolbachia* infections (with J. Z. Farkas), *submitted*, [arXiv:0906.1676](#)

TO CONFERENCES

Mathematical analysis of a kinetic model for cell movement in network tissues (with T. Hillen and Z. Wang), *submitted*, [arXiv:0807.2249](#)

On a size-structured two-phase population model with infinite states-at-birth

(with J. Z. Farkas), *submitted*, [arXiv:0903.1649](https://arxiv.org/abs/0903.1649)

Power of the series inverter (with Ch. Hinow, G. Hinow, and D. Dimitrov), IEEE International Symposium on Industrial Electronics, Vigo, Spain, June 2007

Fitting snow chains to tires (with E. Jordaan, K. Gjøsteen, D. Nikolovski, and S. Weißenberger), Proceedings of the 11th ECMI Modeling Week, Milan, Italy, 1998

Deterministic patterns in pseudorandom point sets (with P. Neumann and M. Potužnik), *Dresdner Schriften zur Mathematischen Stochastik*, 7/1997, Dresden University of Technology

RESEARCH

PRESENTATIONS Multiscale Analysis of Self-Organization in Biology (poster), Banff International Research Station, Banff AB, Canada, July 2009

Seminar in Mathematical Biology, University of Glasgow, United Kingdom, May 2009

Mathematical Modeling in the Medical Sciences, Vanderbilt University, Nashville TN, May 2009

University of Paris VI “Pierre et Marie Curie” and INRIA Rocquencourt, France, January 2009

Winter workshop on Pharmacokinetics and Pharmacodynamics, Cordeliers Research Centre, Paris, France, December 2008

Fall meeting of the American Mathematical Society, Huntsville AL, October 2008

28th South Eastern Atlantic Regional Conference on Differential Equations (SEARCDE 28) University of Arkansas, Little Rock AR, October 2008

Workshop on population dynamics and mathematical biology, CIRM Luminy, Marseille, France, June 2008

Special session on rational drug design, 91st Canadian Chemistry Conference, Edmonton AB, May 2008

Spring meeting of the American Mathematical Society, Bloomington IN, April 2008

Joint international meeting of the American and New Zealand Mathematical Societies, Victoria University of Wellington, New Zealand, December 2007

Seminar in Applied Mathematics, University of Minnesota, Minneapolis MN, October 2007

23rd IFIP TC 7 Conference on System Modelling and Optimization, Cracow, Poland, July 2007

6th International Congress on Industrial and Applied Mathematics (ICIAM 07), Zürich, Switzerland, July 2007

SIAM Conference on Control and Its Applications (CT 07), San Francisco CA, June 2007

University of Alberta, Edmonton AB, Canada, May 2007

Canadian Applied and Industrial Mathematics Society (CAIMS) annual meeting, Banff AB, Canada, May 2007

Arizona State University, Tempe AZ, April 2007, April 2009

Harvard Medical School, Harvard University, Boston MA, March 2007

University of California, Irvine CA, February 2007

26th South Eastern Atlantic Regional Conference on Differential Equations (SEARCDE 26) University of North Carolina, Greensboro NC, October 2006

Vanderbilt Integrative Cancer Biology Center (VICBC) seminar, Vanderbilt University, Nashville TN, October 2006, March 2006, October 2005

German Cancer Research Center (DKFZ), Heidelberg, Germany, January 2006

56th Midwest PDE Seminar, Notre Dame University, Notre Dame IN, December 2005

Analysis & Biomathematics Seminar, Vanderbilt University, Nashville TN, April 2007, October 2005

Workshop on Quantitative Medical Data Analysis Using Math Tools and Statistical Techniques, Johnson City TN, October 2005

European Conference on Mathematical and Theoretical Biology (ECMTB 05, poster), Dresden, Germany, July 2005

SERVICE TO THE COMMUNITY, AWARDS Organization of a minisymposium “Interdisciplinary modelling of cancer treatment” at the European Conference on Mathematical and Theoretical Biology

2008, Edinburgh, United Kingdom (with Heiko Enderling)

Refereed papers for *Differential and Integral Equations*, *European Biophysical Journal*, *Journal of Mathematical Analysis and Applications*, *Nonlinearity*, *Inverse Problems*, *Discrete and Continuous Dynamical Systems B*, *Bulletin of Mathematical Biology* and grant proposals for the French National Research Agency (ANR)

Speaker at the Vanderbilt University Undergraduate Seminar in Mathematics and at University of Minnesota Undergraduate Math Club 2002 – 2007, topics of talks included dynamical systems, mathematical physics, random walks and measure theory

Student member of the Department of Mathematics council, Dresden University of Technology, 1997 – 1999

Supported by NIH/NCI grant U54-CA113007 and the Vanderbilt Integrative Cancer Biology Center (VICBC)

Awarded full stipend and teaching assistantship from Vanderbilt University

Travel awards from NSF, NIH, SIAM and Vanderbilt University to attend conferences in the USA and abroad

Summer research award of the College of Arts and Sciences, Vanderbilt University, May–August 2003

Scholarship holder of the German National Merit Foundation, December 1998 – October 2000

Participation in the “Jugend forscht” contest, national German contest for young (pre–university) researchers, 2 times 2nd prize at the Landeswettbewerb Sachsen (second out of three levels), 1991–1996

CONFERENCES

AND WORKSHOPS ATTENDED Summer School on Integrative Cancer Biology, The Fields Institute, Toronto ON, August 2008

Application of Mathematics to Biomedical Problems, University of Otago, Dunedin, New Zealand, December 2007

SIAM–SMB Conference on the Life Sciences, Raleigh NC, August 2006

Cancer Modeling Workshop, University of Dundee, United Kingdom, June 2006

Barrett Lectures, University of Tennessee, Knoxville TN, April 2005

Mathematical Models of Cell Proliferation and Cancer Chemotherapy, Mathematical Biosciences Institute, Columbus OH, November 2003

22nd South Eastern Regional Conference on Differential Equations (SEARCDE), University of Tennessee, Knoxville TN, October 2002

11th ECMI Modeling Week, University of Milan, Italy, July 1998

PERSONAL INFORMATION

Date of Birth: November 26th, 1974
Place of Birth: Dresden, Germany
Citizenship: German
Visa: H1-B
Languages: German (native), English (fluent), Bulgarian (fluent), Russian
Computer skills: Matlab, Mathematica, LaTeX
Personal interests: Hiking, bicycling, playing the piano

REFERENCES

Glenn F. Webb, PhD, Department of Mathematics, Vanderbilt University, 1326 Stevenson Center, Nashville, TN 37240; glenn.f.webb@vanderbilt.edu

Thomas Hillen, Dr. rer. nat., Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Alberta, T6G 2G1, Canada; thillen@math.ualberta.ca

Ami Radunskaya, PhD, Department of Mathematics, Pomona College, 610 N. College Ave., Claremont, CA 91711; aradunskaya@pomona.edu

Maria-Carme Calderer, PhD, School of Mathematics, University of Minnesota, 536 Vincent Hall, Minneapolis, MN 55455; mcc@math.umn.edu (with regard to teaching)

Jack A. Tuszynski, PhD, Department of Physics, University of Alberta, Edmonton, Alberta, T6G 2G1, Canada; jtus@phys.ualberta.ca