

Dirk Hundertmark

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Personal Data

German and American citizen, married, one daughter.

Research interests

Partial differential equations, analysis, variational methods, functional analysis, spectral theory, motivated by problems from Physics, especially quantum mechanics, and Engineering. Spectral theory of random operators and its connection to statistical mechanics and some probabilistic problems from solid state physics. More recently, mathematical problems in non-linear fiber-optics, especially properties of dispersion managed solitons.

Education

- 5/2003 Habilitation in Mathematics, Ludwig-Maximilians-Universität München.
- 7/1992 – 11/1996 **Ph.D.** (Dr. rer. nat., summa cum laude) in Mathematics, Ruhr-Universität Bochum, Germany.
Thesis: “ *On the theory of the magnetic Schrödinger semigroup.* ”
Advisor: Werner Kirsch
- 11/1985 – 2/1992 Study of Physics, Friedrich-Alexander-Universität Erlangen, Germany.
Graduated with Diplom. **Advisor:** Hajo Leschke.

Employment

- Since 9/2007 Member of the Institute of Condensed Matter Theory at UIUC.
- Since 8/2006 Associate Professor (tenured), Department of Mathematics, University of Illinois at Urbana-Champaign (on leave 8/2006 – 8/2007).
- 8/2006 – 8/2007 Senior Lecturer, School of Mathematics, University of Birmingham, England.
- 1/2003 – 7/2006 Assistant Professor, Department of Mathematics, University of Illinois at Urbana-Champaign.
- 9 – 12/2002 Research fellow at the Institut Mittag-Leffler during the special program “Partial Differential Equations and Spectral Theory.”
- 9/1999–8/2002 Olga Taussky-John Todd Instructor of Mathematics, Caltech.
- 9/1998–1/1999 Princeton University, Department of Physics, Lecturer.

- 9/1997–8/1999 Princeton University, Department of Physics, Visiting Research Fellow.
 5/1997–8/1999 Universität Regensburg, Germany, Department of Mathematics, Wissenschaftlicher Assistent (On leave 9/1997–8/1999).
 1–4/1997 University of Oslo, Norway, Department of Mathematics, European Network on PDE and Quantum Mechanics, Research Fellow.
 7/1995 – 12/1996 Ruhr-Universität Bochum, Department of Mathematics, Sonderforschungsbereich 237: “Unordnung und große Fluktuationen”, Research Fellow.

Grants and Awards

- Since 7/2008 NSF research grant, principal investigator, \$ 190,000.
 6–12/2008 LAS Fellow in a Second Discipline. This is a grant from my college, relieving me from my teaching duties in the Fall 2008. I joint the research group of Todd Martinez, a quantum chemist at UIUC, in order to boost collaborations between Math and Chemistry at UIUC.
 5/2008 Research board grant, \$ 10,000, to support a student.
 7/2004–6/2007 NSF research grant, principal investigator, \$ 93,000.
 6/2001 Teaching Award, Associated Students of the California Institute of Technology (ASCIT).
 9/1997–8/1999 DFG Forschungstipendium (Research Fellow of the Deutsche Forschungsgemeinschaft (German National Science Foundation)).
 7/1992 – 6/1995 Fellow of the Graduiertenkolleg “Geometry and Mathematical Physics” at the Ruhr-Universität Bochum.
 7/1988 – 2/1992 Fellow of the Studienstiftung des Deutschen Volkes (German National Scholarship Foundation).

Invited Talks and Visits

- 2010 Summer conference in Mathematical Physics, Sogang University, South Korea, 18–31 July.
 University of Arizona, Tucson, 28 April – 1 May.
 Tage der Mathematischen (Physik/MathPhys Days) (aka Hajo Leschke’s retirement conference), Nürnberg, 11–13 February.
 Universität Bonn, 14–18 March.
 University of Chicago, 31 March.
- 2009 Oberwolfach, Low Eigenvalues of Laplace and Schrödinger Operators, 8–14 February.
 U-Texas Austin, 22–28 March 2009.
 Banff, Random Schrodinger Operators: Universal Localization, Correlations, and Interactions, 19–24 April.
 Warwick, 18–24 May.
 Bath, 25–30 May.
 Leipzig, 4 June.
 LMU München, 10 July.
 Banff, Analysis of nonlinear wave and applications in engineering, 9–14 August.
 International Conference on Numerical Analysis and Applied Mathematics (ICNAAM) 2009, Nonlinear waves and singularities in nonlinear optics, hydrodynamics and plasmas, 18–22 September 2009, Rethymno, Crete, Greece.
 Special session on Harmonic Analysis and Partial Differential Equations, AMS Meeting,

- Waco, Texas 16–18 October 2009.
 U-Texas Austin, 19–20 October.
 Universität Karlsruhe, 26–29 November.
- 2008 Oberwolfach, Disordered Systems: Random Schrödinger Operators and Random Matrices, 23–29 March.
 Technische Universität Stuttgart, 31 March.
 Universität Bonn, 4–16 May.
 TU-Dresden 21 May.
 TU-Chemnitz 28 May.
 Max-Planck Institute for Physics of Complex Systems in Dresden, 21–30 May.
 Friedrich-Alexander Universität Erlangen, 5 June.
 Ludwig-Maximilians Universität München 23 June – 13 July.
 Eberhards-Karl Universität Tübingen, 14–15 July.
 Max Planck Institute for Mathematics and its Applications, Leipzig, 15–31 July.
 Institute for Mathematics and its Applications, Minneapolis, 28 September – 10 October.
 Penn State University, 30 October– 1 November.
 Oberwolfach, Interplay of Analysis and Probability in Physics, 30 November – 6 December.
- 2007 Oberwolfach Mini-Workshop: Multiscale and Variational Methods in Material Science and Quantum Theory of Solids, 11–17 February.
 Cardiff School of Mathematics, 13 and 23 March.
 Welsh Mathematics Colloquium, Gregynog 21–23 May.
 Warwick, Analysis seminar 21 June.
- 2006 University of Birmingham, England, 11–12 January.
 Spectral Theory and Mathematical Physics. A Conference in Honor of Barry Simon’s 60th Birthday, 27–31 March, California Institute of Technology.
 Low Eigenvalues of Laplace and Schrödinger Operators, 22–26 May, American Institute of Mathematics, Palo Alto, California.
 Isaac Newton Institute for Mathematical Sciences, Spectral Theory and Partial Differential Equations, 17 July – 11 August.
 LMS Meeting & Workshop: Analysis and Stochastics of Growth Processes University of Bath, 11–15 September.
 Harmonic Analysis Workshop, 19 September, University of Glasgow. Organized by the UK Harmonic Analysis and PDEs Research Network.
 London Analysis Seminar, King’s College, London, 30 November.
 Maxwell Institute for Mathematical Sciences, Edinburgh, 11 December.
- 2005 Universität Bielefeld, 1 March.
 Joint Caltech–UCLA harmonic analysis seminar, 18 March.
 UAB 2005 International Conference on Differential Equations and Mathematical Physics, Birmingham Alabama 29 March – 2 April.
 Probability and Mathematical Physics A Conference in Honor of Stanislav Molchanov’s 65th Birthday Centre de Recherches Mathématiques, Montréal 27 June – 1 July 1.
 Differential and Integral operators in L^p space, 22–24 July, a conference to mark the sixty-fifth birthday of Professor WD Evans, Cardiff.
 Gregynog meeting on analytic and computational problems in spectral theory, Cardiff Wales, 24–29 July.

- Order, Disorder, and Transport: Recent Advances in Schrödinger Operator Theory, 17–22 September, Banff International Research Station.
University of Wisconsin, 17 October.
- 2004 University of Alabama Birmingham 27 February.
KTH Stockholm, 3 March.
Workshop on Spectral Theory of Schrödinger Operators, Centre de recherches mathématiques, Université de Montréal, Canada, 26–30 July.
Paris Ceremade, Dauphine, 10–17 October.
Ruhr-Universität Bochum, 18–22 October.
Spectral Analysis of Partial Differential Equations, Oberwolfach, 28 November – 4 December.
- 2003 Ludwig-Maximilians Universität München 18–29 May.
Paris Ceremade, Dauphine 2–8 July.
Spectral Theory and Inverse Spectral Theory for Jacobi Operators, Snowbird, Utah, 8–13 June.
Mathematics and Physics of Disordered Systems, Oberwolfach, 26 October – 1 November.
- 2002 University of Illinois at Urbana-Champaign, 17 January.
Université de Montréal, 25 January.
University of California Santa Cruz, 5 February.
University of Maryland, College Park, 7 February.
Texas A&M University, College Station, 12 February.
UAB 2002 International Conference on Differential Equations and Mathematical Physics Birmingham, Alabama, 26–30 March.
University of California Davis, 4 June.
Rheinische Friedrich-Wilhelms-Universität Bonn, 10 June.
Universität Osnabrück, 13 June.
Joint Summer Research Conference in the Mathematical Sciences, *Waves in Periodic and Random Media*, Mount Holyoke College, South Hadley, MA, 22–28 June.
Institut Mittag-Leffler, 28 November.
Analysis & Quantum Kick-Off Meeting LMU München, 6–9 December.
- 2001 UBC, Vancouver, Canada, 9 February.
Friedrich-Alexander Universität Erlangen, 13 June.
Ludwig-Maximilians Universität München, 20 June.
Max Born Symposium 2001, Wroclaw University, Polen, 27–30 June.
Ruhr-Universität Bochum, 3 July.
Rheinische Friedrich-Wilhelms-Universität Bonn, 5 July.
Workshop on Mathematical Physics, Mambucaba, Brazil 19–25 August.
UCLA, 9 November.
AMS Meeting #972, 10–11 November, Irvine, California.
- 2000 19th Western States Mathematical Physics Meeting 21–22 February, Caltech.
March AMS meeting, Santa Barbara, 11–12 March.
UCLA Analysis seminar 13 October.
UC-Davis MathPhys seminar 31 October.
AMS meeting, University of Alabama Birmingham, 10–12 November.
- 1999 Technical University Stockholm, 1–14 February.
UAB-GIT meeting on PDE and Mathematical Physics, Birmingham, 16–20 March.

Oberwolfach, 1–7 August.

UC Irvine 4 November.

UCLA 12 November.

1998 3rd European Meeting on Partial Differential Equations and Applications in Quantum Mechanics, Regensburg, 1 November.

University of Virginia 18 November.

1996 Workshop on “Dirichlet Forms and Stochastic Differential Geometry”, Universität Bonn, 8–10 May.

1995 Oberwolfach 9–16 July.

Sixth “International Colloquium on Differential Equations”, Plovdiv, Bulgaria, 19–23 August.