

Curriculum Vitae

Address

Karlsruhe Institute of Technology
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Personal data

Date of birth: 19 January 1966
Place of birth: Ludwigsburg, Germany
Nationality: German
Marital status: Married

Education

8/76–7/85 ‘Gymnasium’ (High school) in Ludwigsburg
2/86–9/87 Community Service (as alternative to Military Service)
10/88–9/90 Study of Mathematics and Physics in Stuttgart
10/90–9/94 Study of Mathematics, Physics, and Philosophy in Tübingen
Languages German, English, French

Degrees

21 Sep 90 Vordiplom in Mathematics, University of Stuttgart
6 Sep 94 Diplom in Mathematics, University of Tübingen
10 July 96 Dr. rer.nat. (Ph.D.) in Mathematics, Univ. of Tübingen. Title of thesis:
Exponential bounds and hyperbolicity of evolution families
26 July 00 Habilitation in Mathematics, University of Tübingen. Title of thesis:
Exponential dichotomy of non-autonomous evolution equations

Employment

10/94–9/96 Assistant (‘Wissenschaftlicher Angestellter’), University of Tübingen
10/96–2/97 Research Assistant, University of Tübingen
6/98–9/98 Research Assistant, University of Tübingen
10/98–3/00 Assistant Professor (‘Wissenschaftlicher Assistent’), Univ. of Tübingen
4/00–4/06 Assistant Professor (since 7/01 ‘Oberassistent’), University of Halle
since 5/06 Professor, Karlsruhe Institute of Technology (until 2009: University of
Karlsruhe)

Scholarships

- 9/95–11/95 DAAD scholarship for a research visit in the U.S.
3/97–2/98 DFG research scholarship
10/07 Scholarship as Miller’s Scholar in Residence, University of Missouri

Research projects

1. Principal investigator of the projects
A4: Time integration of Maxwell equations (with M. Hochbruck) and
A5: Qualitative behavior of nonlinear Maxwell equations
within the second funding period of the Collaborative Research Centre 1173 *Wave phenomena: analysis and numerics* (07/19 - 06/23), funded by DFG (Germany). Speaker of the integrated research training group. In the first funding period (07/15 - 06/19) also principal investigator of B2: Dispersion Management (with D. Hundertmark) and B5: Biharmonic wave maps (with T. Lamm).
2. Member of the Research Training Group 1294 *Analysis, Simulation and Design of Nanotechnological Processes* (10/10–03/15), funded by DFG (Germany).
3. Project *Qualitative behavior of parabolic problems with nonlinear dynamical and static boundary conditions* (04/09 – 03/11), funded by DFG (Germany).
4. Co-organisator of the German–Moroccan cooperation projects *Functional analytic methods for partial functional differential equations* (04/01–03/03; 06/04–05/06) and *Functional analytic methods for evolution equations* (05/07–04/09; 01/11–12/12) with L. Maniar and A. Rhandi, Université de Marrakech, funded by DFG (Germany) and CNRST (Morocco).
5. Co-organisator of the US-German cooperation project *Center manifolds and stability of nonlinear partial differential equations* with Y. Latushkin, University of Missouri–Columbia (2004/05), funded by DAAD (Germany) and NSF (USA).
6. Co-organisator of the Marie Curie exchange program *Asymptotics of Operator Semigroups* (11/12–10/16).
7. Support of *7th Workshop on Control of Distributed Parameter Systems* in Wuppertal (Germany), 18–22 July 2011, by DFG. Main applicant: B. Jacob, Wuppertal.
8. Support of the conference *Evolution Equations: Randomness and Asymptotics* in Bad Herrenalb (Germany), 10–14 October 2011, by Volkswagen Foundation.
9. Support of the conference *Parabolic Evolution Equations, Harmonic Analysis and Spectral Theory* in Bad Herrenalb (Germany), 6–10 May 2019, by DFG.

Other scholar activities

1. Co-organisator of the workshop *Evolutionsgleichungen und Operatorhalbgruppen*, 4–7 December 1997, Blaubeuren, Germany.
2. Co-organisator of the Internetseminars on *Evolution Equations and Semigroups* 1997/98, 1998/99 and 1999/00.

3. Co-organisor of the *TULKA Conference on Semigroups and Evolution Equations*, 13–17 June 2001, Blaubeuren.
4. Co-organisor of *European–Maghreb Workshops on Semigroup Theory, Evolution Equations and Applications* in Marrakesch, Marokko, 17–23 March 2002 and in Freudenstadt, Germany, 29 March – 2 April 2004.
5. Co-organisor of the session *Operator Semigroups and Evolution Equations* of the *Joint International Meeting UMI – DMV* in Perugia, Italy, 18–22 June 2007.
6. Organisor of the mini-workshop *Evolution Equations* in Karlsruhe, Germany, 24 June 2008.
7. Co-organisor of the workshop *Semigroups Everywhere* in Tübingen, Germany, 20–22 November 2008.
8. Co-organisor of the session *Stability of Partial Differential Equations and Evolution Equations* of the *8th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, 25–28 May 2010, Dresden, Germany.
9. Co-organisor of the *International Conference on Evolution Equations* in Schmitten, Germany, 11–15 October 2010.
10. Co-organisor of the *7th Workshop on Control of Distributed Parameter Systems* in Wuppertal, Germany, 18–22 July 2011.
11. Co-organisor of the conference *Evolution Equations: Randomness and Asymptotics* in Bad Herrenalb, Germany, 10–14 October 2011.
12. Co-organisor of the *8th Euro–Maghrebian Workshop on Evolution Equations* in Lecce, 11–15 June 2012.
13. Co-organisor of the 16th internet seminar *Operator Semigroups and Dispersive Equations*, 2012/13.
14. Co-organisor of the conference *Nonlinear Evolution Equations: Analysis and Numerics* at the Mathematical Research Institute Oberwolfach, 16–22 March 2014.
15. Co-organisor of the *9th Euro–Maghrebian Workshop on Evolution Equations* in Marrakesh, 22–26 September 2014.
16. Co-organisor of the summer school *Wave phenomena: Analysis and Numerics* in Karlsruhe, 12–16 September 2016.
17. Co-organisor of the *10th Euro–Maghrebian Workshop on Evolution Equations* in Blaubeuren, 26–30 September 2016.
18. Co-organisor of the *Conference on Mathematics of Wave Phenomena* in Karlsruhe, 23–27 July 2018.
19. Co-organisor of the conference *Parabolic Evolution Equations, Harmonic Analysis and Spectral Theory* in Bad Herrenalb, 6–10 May 2019.
20. Co-organisor of the seminar *Wave Phenomena: Analysis and Numerics* at the Mathematical Research Institute Oberwolfach, 24–30 November 2019.
21. Member of the steering committee of the *Internet Seminars on Evolution Equations*.

22. Member of the steering committee of the *Euro–Maghrebian Workshops on Evolution Equations*.
23. Reviewer for Mathematical Reviews.
24. Member of the Deutschen Mathematiker Vereinigung (DMV), Germany, and the American Mathematical Society.

Advisor for Ph.D. and other theses

Bachelor theses

1. Konvergenz der Lösungen von Reaktionsgleichungen. (04/12)
2. Virendynamik. (06/12)
3. Konvergenz im Grundmodell der Populationsgenetik. (07/12)
4. Das Verhalten von zweidimensionalen Populationsgleichungen. (07/12)
5. Einführung in die Distributionentheorie. (10/12)
6. Biochemische Oszillationen. (03/13)
7. Die komplexe Interpolationsmethode. (04/13)
8. Exponentielle Stabilität bei stochastischen Differentialgleichungen. (07/13)
9. Der Taubersche Satz von Wiener und seine Anwendung auf den Primzahlsatz. (10/13)
10. Der Gelfandsche Darstellungssatz für kommutative Banachalgebren. (10/13)
11. Stabilität von Equilibria im Grundmodell der Populationsgenetik. (10/13)
12. Schrödinger Gleichung und Fouriertransformation. (08/15)
13. Reelle Interpolationsräume. (09/15)
14. Die Sätze von Paley–Wiener und Titchmarsh. (10/15)
15. Der Satz von Malgrange–Ehrenpreis. (11/15)
16. Die Schrödingergleichung mit zeitabhängigen Hamiltonoperator. (07/16)
17. Lyapunov-Funktionen und chemische Reaktionssysteme. (08/18)
18. Biochemische Oszillationen und das Theorem von Poincaré–Bendixson. (08/18)
19. Der Rieszsche Darstellungssatz für stetige Funktionale. (08/18)
20. Fixpunktsätze und das Haarsche Maß. (08/18)
21. Die Methode von Lojasiewicz. (08/18)
22. Epidemie- und Endemiemodelle. (09/18)
23. Die Hopf-Verzweigung. (10/18)
24. Die Liénard-Gleichung. (04/19)
25. Lyapunov-Funktionen und Stabilität. (04/19)
26. Das Theorem von Poincaré–Bendixson und der Jordansche Kurvensatz. (04/19)
27. Stone–Čech compactification. (01/20)

Diploma and master theses

1. Qualitative Eigenschaften von Markovhalbgruppen. (12/07)
2. Lokale und globale Hopf-Bifurkation. (11/08)
3. Starke Stabilität und Fastperiodizität von Operatorhalbgruppen. (03/09)
4. The Model Theory for Hilbert Space Contractions. (04/10)
5. Hyperzyklische Operatoren und deren Punktspektrum. (07/10)
6. Virenmodell mit Diffusion. (08/11)

7. Ein Darstellungssatz für nichtabschließbare Sesquilinearformen. (09/11)
8. Convergence to an equilibrium in gradient systems and the Lojasiewicz–Simon inequality. (05/12)
9. Globale Existenz der Lösungen von Reaktionsdiffusionsgleichungen. (08/12)
10. Well-posedness and stability of damped nonlinear wave type equations. (02/13)
11. The asymptotic behavior of a malaria model with diffusion and incubation period. (03/13)
12. Global attractor for a chemotaxis model with prevention of overcrowding. (05/13)
13. Lyapunov’s second method for random dynamical systems. (11/13)
14. An invariant manifold for a critical nonlinear Schrödinger equation. (12/13)
15. Der Funktionalkalkül für Streifenoperatoren und das Transferenzprinzip für Operatorgruppen. (04/14)
16. Analytische Fortsetzung und Stabilität von Operatorhalbgruppen. (05/14)
17. Geometrische Ergodizität von stochastischen Differentialgleichungen mit degeneriertem Rauschen. (06/14)
18. Scattering and blow-up for the energy-critical focusing nonlinear Schrödinger equation. (08/14)
19. Lokale Wohlgestelltheit und Instabilität von wandernden Wellen in einem chemotaktischen Modell. (10/15)
20. Globale Wohlgestelltheit einer Klasse gekoppelter Maxwellgleichungen. (11/15)
21. Maximale Regularität einer strukturell gedämpften Plattengleichung mit inhomogenen Randbedingungen. (03/16)
22. Allgemein und polynomial halb gleichmäßige Stabilität von stark stetigen Operatorhalbgruppen. (12/16)
23. Stabilitätsershaltende diskretisierte Approximationen gedämpfter Wellengleichungen. (09/17)
24. Stabilität von Solitonen im Fermi-Pasta-Ulam Gitter. (06/18)
25. Taubersche Sätze und Raten für den Energieabfall in L^p . (07/18)
26. Oberflächenmaße in unendlich dimensionalen Banachräumen. (10/20)
27. Resolventenabschätzungen für magnetische Schrödingeroperatoren. (12/20)

Ph.D theses

1. Esther Bleich: Global properties of kernels of transition semigroups. (11/10)
2. Martin Meyries: Maximal regularity in weighted spaces, nonlinear boundary conditions, and global attractors. (11/10)
3. Dominik Müller: Well-posedness for a general class of quasi-linear evolution equations – with applications to Maxwell’s equations. (07/14)
4. Heiko Hoffmann: Descriptive characterisation of the variational Henstock–Kurzweil–Stieltjes integral and applications. (12/14)
5. Lars Machinek: Additive control and observation systems. (05/17)
6. Johannes Eilinghoff: Error analysis of splitting methods for wave type equations. (07/17)
7. Martin Spitz: Local wellposedness of nonlinear Maxwell equations. (07/17)

8. Andreas Geyer-Schulz: Maxwell–Schrödinger system: well-posedness and standing waves. (10/19)
9. Konstantin Zerulla: Error analysis for time integration of Maxwell equations. (12/20)
10. Richard Nutt: Decay of solutions to Maxwell equations with conductivity. (since 01/21)