

CURRICULUM VITAE

MICHAEL WESTDICKENBERG

Personal Information

Name Michael Westdickenberg
Title Professor
Date of Birth April 10, 1972
Citizenship German
Address RWTH Aachen University
Chair for Mathematics (Analysis)
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Education

04/2000 Ph.D. in Applied Mathematics, University of Bonn
Thesis: *Kinetische Gleichungen und Velocity Averaging*
Advisor: S. Noelle
04/1997 Diplom in Applied Mathematics, University of Bonn
Thesis: *Ein neuer Konvergenzbeweis für Finite-Volumen-Verfahren*
Advisor: S. Noelle

Employment History

10/2011–present Professor
Chair for Mathematics (Analysis)
RWTH Aachen University (Germany)
08/2010–09/2011 Associate Professor
School of Mathematics
Georgia Institute of Technology (U.S.A.)
08/2006–07/2010 Assistant Professor
School of Mathematics
Georgia Institute of Technology (U.S.A.)

Date: January 2013.

04/2004–07/2006 Research Assistant
 Institute for Applied Mathematics
 University of Bonn (Germany)

04/2003–03/2004 Postdoctoral Fellow
 Département de Mathématiques et Applications
 École Normale Supérieure Paris (France)

04/2001–03/2003 Research Assistant
 Institute for Applied Mathematics
 University of Bonn (Germany)

Employment History (Non-Academic)

10/1999–03/2001 Business Consultant, FJA München (Germany)

Current Fields of Interest

Hyperbolic Conservation Laws
 Optimal Transport
 Fluid Dynamics, Geophysical Flows
 Partial Differential Equations

Publications

Published Papers

Yann Brenier, Wilfrid Gangbo, Giuseppe Savaré, Michael Westdickenberg
Sticky particle dynamics with interactions
J. Math. Pures Appl. 99 (2013) 577–617

Michael Westdickenberg
Projections onto the cone of optimal transport maps and compressible fluid dynamics
J. Hyperbolic Differ. Equ. 7 (2010) 605–649

Michael Westdickenberg, Jon Wilkening
Variational particle schemes for the porous medium equation and for the system of isentropic Euler equations
M2AN Math. Model. Numer. Anal. 44 (2010) 133–166

Wilfrid Gangbo, Michael Westdickenberg
Optimal transport for the system of isentropic Euler equations
Comm. PDE 34 (2009) 1041–1073

Philippe G. LeFloch, Michael Westdickenberg
Finite energy solutions to the isentropic Euler equations with geometric effects
J. Math. Pures et Appl. 88 (2007) 389–429

Felix Otto, Michael Westdickenberg
Eulerian calculus for the contraction in the Wasserstein distance
SIAM J. Math. Anal. 37 (2005) 1227–1255

Benoît Perthame, Michael Westdickenberg
Total oscillation diminishing property for scalar conservation laws
Numer. Math. 100 (2005) 331–349

Felix Otto, Michael Westdickenberg
Convergence of thin film approximation for a scalar conservation law
J. Hyperbolic Differ. Equ. 2 (2005) 183–199

François Bouchut, Michael Westdickenberg
Gravity driven shallow water models for arbitrary topography
Comm. Math. Sci. 2 (2004) 359–389

Camillo De Lellis, Felix Otto, Michael Westdickenberg
Minimal entropy conditions for Burgers equation
Quart. Appl. Math. 62 (2004) 687–700

Camillo De Lellis, Felix Otto, Michael Westdickenberg
Structure of entropy solutions for multi-dimensional scalar conservation laws
Arch. Ration. Mech. Anal. 170 (2003) 137–184

Camillo De Lellis, Michael Westdickenberg
On the optimality of velocity averaging lemmas
Ann. Inst. H. Poincaré Anal. Non Linéaire 20 (2003) 1075–1085

Michael Westdickenberg
Some new velocity averaging results
SIAM J. Math. Anal. 33 (2002) 1007–1032

Sebastian Noelle, Michael Westdickenberg
A new convergence proof for finite volume schemes using the kinetic formulation of conservation laws
SIAM J. Numer. Anal. 37 (2000) 742–757

Lecture Notes and Survey Articles

Gianluca Crippa, Felix Otto, Michael Westdickenberg
Regularizing effect of nonlinearity in multidimensional scalar conservation laws
In “Transport Equations and Multi-D Hyperbolic Conservation Laws.”
Lecture Notes of the Unione Matematica Italiana, Springer (2008)

Sebastian Noelle, Michael Westdickenberg
Convergence of approximate solutions of conservation laws
In “Geometric Analysis and Nonlinear Partial Differential Equations.”
Springer (2003)

Research Grants and Contracts

- 2007–2010 National Science Foundation Research Grant DMS-0701046
 “*Isentropic Euler Equations*”
- 2011 National Science Foundation Research Grant DMS-1101423
 “*The Isentropic Euler Equations and Optimal Transport*”

Meetings and Symposia

- Joint Analysis-Seminar Augsburg-München
Augsburg University (Germany), January 24, 2013
- Research Visit
Università di Pavia (Italy), February 11–16, 2013
- Oberseminar Angewandte Analysis
TU Dortmund University (Germany), January 10, 2013
- ERC Workshop on Optimal Transportation and Applications
Scuola Normale Superiore Pisa (Italy), November 5–9, 2012
- ERC Workshop on Optimal Transportation and Applications
Scuola Normale Superiore Pisa (Italy), October 12–16, 2010
- Research Visit
MPI Leipzig (Germany), June 6–July 17, 2010
- Workshop on Nonlinear Diffusions and Entropy Dissipation: From Geometry to Biology
Banff International Research Station (Canada), May 9–14, 2010
- PDE/Applied Math Seminar
Indiana University Bloomington (USA), March 21, 2010
- PDE Seminar
University of Houston (USA), February 12, 2010
- Midwest PDE Seminar
Purdue University (USA), November 7–8, 2009
- Workshop on Energy-Driven Systems
Carnegie Mellon University Pittsburgh (USA), August 27–29, 2009
- 2009 Summer Program: Nonlinear Conservation Laws and Applications
IMA Minneapolis (USA), July 13–31, 2009
- SFB Seminar / Research Visit
Hausdorff Research Institute Bonn (Germany), June 12–July 12, 2009
- Colloquium
University of Pittsburgh (USA), April 17, 2009

AMS Joint Mathematics Meeting
Special Session on Nonlinear Partial Differential Equations and Applications
Washington DC (USA), January 5–8, 2009

Workshop on Hyperbolic Conservation Laws
Mathematisches Forschungsinstitut Oberwolfach (Germany), December 7–13, 2008

Séminaire MIP / Research Visit
Université Toulouse III (France), May 10–June 7, 2008

Workshop on Aspects of Optimal Transport in Geometry and Calculus of Variations
IPAM Los Angeles (USA), March 30–April 4, 2008

PDE Seminar
University of Minnesota Minneapolis (USA), March 5, 2008

SIAM Conference on Analysis of PDEs
Hilton Hotel Mesa (USA), December 10–12, 2007

Workshop on Particle Systems, Nonlinear Diffusion, And Equilibration
Hausdorff Research Institute Bonn (Germany), November 12–16, 2007

Differential Equations Seminar
University of Michigan Ann Arbor (USA), October 10–12, 2007

Minicourse on Hyperbolic Partial Differential Equations
Helsinki University of Technology (Finland), June 4–6, 2007

Workshop on Nonlinear Hyperbolic Problems
INDAM Rome (Italy), May 28–June 1, 2007

PDE Seminar / Research Visit
Northwestern University Evanston (USA), April 18–22, 2007

Dixieland Seminar
Emory University Atlanta (USA), March 6, 2007

Workshop on Hyperbolic Conservation Laws and Related Problems
Banff International Research Station (Canada), October 28–November 2, 2006

Eleventh International Conference on Hyperbolic Problems (HYP2006)
ENS Lyon (France), July 17–21, 2006

PDE / Appl. Math. Seminar
University of Maryland at College Park (USA), February 9–10, 2006

ESF-Workshop on Entropy Methods in PDE Theory and in Stochastics
Mainz (Germany), November 23–25, 2005

Fifth International ISAAC Congress
Catania (Italy), July 25–30, 2005

HYKE-Summer School and Workshop
WPI Vienna (Austria), July 19–26, 2005

PDE Seminar / Research Visit
Northwestern University Evanston (USA), March 7–April 10, 2005

Symposium on Stochastic Calculus with Applications in Geometry and Analysis
Bonn (Germany), December 13–15, 2004

Graduiertenkolleg
Universität Freiburg (Germany), July 14–16, 2004

Workshop on Multi-Dimensional Conservation Laws and Related Topics
Würzburg (Germany), June 25–27, 2004

Seminar Arbeitsgemeinschaft Analysis
Universität Zürich (Switzerland), June 7–11, 2004

Oberseminar Analysis
MPI Leipzig (Germany), October 27–29, 2003

DMV-Tagung
Rostock (Germany), September 14–19, 2003

Best Paper Award in Section “PDEs and Calculus of Variations”

Oberseminar Analysis / Research Visit
MPI Leipzig (Germany), March 3–6, 2003 and October 7–11, 2002

Oberseminar IGPM
RWTH Aachen (Germany), April 18, 2002

Séminaire DMA / Research Visit
ENS Paris (France), March 11–22, 2002

Research Visit
UC Los Angeles (USA), April 1–30, 1998

Other Professional Activities

Organization of HYKE-Workshop “Aspects of Shock Wave Theory”
(with H. Freistühler and S. Noelle)
Leipzig (Germany), October 7–9, 2002