Curriculum Vitae

Prof. Dr. Mario Ohlberger

Office Address
Institut für Numerische und Angewandte Mathematik
Universität Münster, Einsteinstr. 62
48149 Münster, Germany
Phone: +49(0)251 83-33775
Fax: +49(0)251 83-32729
Email: mario.ohlberger@uni-muenster.de
URL: www.uni-muenster.de/math/num/ohlberger

Date of Birth: July 31, 1970
Citizenship: Germany
Marital Status: Married, four children

Education

1997 – 2001	**Ph.D.** in Mathematics, Universität Freiburg (summa cum laude) Date of the dissertation: April 5th, 2001 Advisor for Ph.D. Thesis: Prof. Dr. D. Kröner Title of Ph.D. Thesis: *A posteriori error estimates and adaptive methods for convection dominated transport processes*
1993 – 1997	**Diploma** in Mathematics, Universität Freiburg (very good) Title of Diploma Thesis: *Convergence of a mixed finite element – finite volume method for the two phase flow in porous media*
1991 – 1993	**Undergraduate Studies**, Mathematics, Universität Kaiserslautern
1981 – 1990	Secondary school: Simmern, *Degree: Abitur (1,5)*
1977 – 1981	Primary school: Beltheim

Academic and Work Experience

2008 to present	Managing director of the Institut für Numerische und Angewandte Mathematik, Westfälische Wilhelms-Universität Münster
2007 to present	Member of the board *Competence for Computing in Science (CoCoS)* at WWU Münster
2007 to present	Universtät Münster, Institut für Numerische u. Angewandte Mathematik and Center for Nonlinear Science, Full Professor (W3)
2002 – 2007	Universtät Freiburg, Abteilung für Angewandte Mathematik, Postdoctoral Research Associate (C1)

Sept. 2005	Mittag-Leffler Institute, Stockholm, Schweden, Guest Researcher
Sept. 2004	F.O.R.T.H., University of Heraklion, Greece Postdoctoral Research Associate
Jan. – June 2003	CSCAMM, University of Maryland, USA Postdoctoral Research Associate
Sept./Okt. 2002	F.O.R.T.H., University of Heraklion, Greece Postdoctoral Research Associate
May 2001	CMI, Université de Provence, Marseille, France Postdoctoral Research Associate
1997 – March 2002	Universtät Freiburg, Abteilung für Angewandte Mathematik, Research and Teaching Staff
1997 – April 2001	Universtät Freiburg, Fellowship at the Graduiertenkolleg "Nichtlineare Differentialgleichungen: Modellierung, Theorie, Numerik, Visualisierung"
1993 – 1997	Universtät Freiburg, Abteilung für Angewandte Mathematik, Teaching and Programming Assistant,
1991	Technical Trainee at the Company Rapetti, Castellione (Italy)
1990 – 1991	Basic military service

Honors and Awards

November 2002	Grant within the Eliteförderprogramm für Postdoktoranden of the Landesstiftung Baden-Württemberg
October 2001	*Ferdinand–von–Lindemann–Preis* for my dissertation, Universität Freiburg
1994	*Landeslehrpreis Baden-Württemberg* as a member of the tutorial group in mathematics, Universität Freiburg

Positions offered

September 2009	Offered a W3 professorship for scientific computing at the Technische Universität Darmstadt (declined)
November 2006	Offered a professorship (W3, 5 years) for applied numerical simulation at the Rheinische Friedrich-Wilhelms Universität Bonn (declined)
July 2006	Offered a W2 professorship for numerical mathematics at the Ruhr–Universität Bochum (declined)

Languages

German (mother tongue)

English (advanced courses)

French and Italian (intermediate and reading courses)

Münster, February 24, 2012 _____

Research profile

Methodically the focus of my research interests is on

- a posteriori error estimates for partial differential equations,
- adaptive numerical methods,
- model reduction and optimization for parametrized partial differential equations,
- numerical multi-scale methods and homogenization,
- software development, and
- scientific computing.

Concerning applications, I concentrate on the following fields

- technical problems involving fluid dynamics (e.g. fuels cells, lithium-ion batteries),
- meteorology and climate research,
- hydrological prozesses and water management,
- life sciences (medicine and biology).

List of Publications

A) Preprints

[1] B. Henning, and M. Ohlberger. A-posteriori error estimation for a heterogeneous multiscale method for monotone operators and beyond a periodic setting. Preprint 01/11 - N, FB 10, Universität Münster (2011).

[2] M. Ohlberger, and K. Smetana. A new problem adapted hierarchical model reduction technique based on reduced basis methods and dimensional splitting. Preprint 03/10 - N, FB 10, Universität Münster (2010).

[3] K. Mikula, and M. Ohlberger. A new inflow-implicit/outflow-explicit finite volume method for solving variable velocity advection equations. Preprint 01/10 - N, FB 10, Universität Münster (2010).

[4] B. Henning, and M. Ohlberger. A-posteriori error estimate for a heterogeneous multiscale finite element method for advection-diffusion problems with rapidly oscillating coefficients and large expected drift. Preprint 09/09 - N, FB 10, Universität Münster (2009).

B) Publications in Academic Journals

[5] M. Drohmann, B. Haasdonk, and M. Ohlberger. Reduced basis approximation for nonlinear parametrized evolution equations based on empirical operator interpolation. Accepted for publication in *SIAM J. Sci. Comput.*, 2012.

[6] S. Kaulmann, M. Ohlberger, and B. Haasdonk. A new local reduced basis discontinuous galerkin approach for heterogeneous multiscale problems. *C. R. Math. Acad. Sci. Paris*, 349(23-24):1233-1238, 2011.

[7] B. Haasdonk, M. Dihlmann, and M. Ohlberger. A training set and multiple bases generation approach for parametrized model reduction based on adaptive grids in parameter space. *Math. Comput. Model. Dyn. Syst.*, 17(4):423–442, 2011.

[8] B. Henning, and M. Ohlberger. A note on homogenization of advection-diffusion problems with large expected drift. *Z. Anal. Anwend.*, 30(3):319–339, 2011.

[9] B. Haasdonk, and M. Ohlberger. Efficient reduced models and a-posteriori error estimation for parametrized dynamical systems by offline/online decomposition. *Mathematical and Computer Modelling of Dynamical Systems*, 17(2):145–161, 2011.

[10] B. Henning, and M. Ohlberger. The heterogeneous multiscale finite element method for advection-diffusion problems with rapidly oscillating coefficients and large expected drift. *Networks and Heterogeneous Media*, 5(4):711–744, 2010.

[11] K. Mikula, and M. Ohlberger. A New Level Set Method for Motion in Normal Direction Based on a Forward-Backward Diffusion Formulation. *SIAM J. Sci. Comput.*, 32 (3):1527–1544, 2010.

[12] A. Dedner, R. Klöfkorn, M. Nolte, and M. Ohlberger. A generic interface for parallel and adaptive scientific computing: Abstraction principles and the DUNE-FEM module. *Computing*, 90(4):165–196, 2010.

[13] B. Henning, and M. Ohlberger. The heterogeneous multiscale finite elment method for elliptic homogenization problems in perforated domains. *Numer. Math.*, 113(4):601 – 629, 2009.

[14] M. Ohlberger. A review of a posteriori error control and adaptivity for approximations of nonlinear conservation laws. *Int. J. for Numer. Meth. in Fluids*, 59:333-354, 2009.

[15] B. Haasdonk, M. Ohlberger, and G. Rozza. A reduced basis method for evolution schemes with parameter-dependent explicit operators. *Electronic Transactions on Numerical Analysis*, 32: 145–161, 2008.

[16] P. Bastian, M. Blatt, D. Dedner, C. Engwer, R. Klöfkorn, M. Ohlberger, and O. Sander. A generic grid interface for parallel and adaptive scientific computing. Part II: implementation and tests in DUNE. *Computing* 82: 121-138, 2008.

[17] P. Bastian, M. Blatt, D. Dedner, C. Engwer, R. Klöfkorn, M. Ohlberger, and O. Sander. A generic grid interface for parallel and adaptive scientific computing. Part I: abstract framework. *Computing* 82: 103-119, 2008.

[18] K. Steinkamp, J. Schumacher, F. Goldsmith, M. Ohlberger, and C. Ziegler. A non-isothermal PEM fuel cell model including two water transport mechanisms in the membrane. *J. Fuel Cell Sci. Technol.*, 5(1):011007, 16 pp., 2008.

[19] B. Haasdonk, and M. Ohlberger. Reduced basis method for finite volume approximations of parametrized evolution equations. *M2AN Math. Model. Numer. Anal.*, 42(2):277-302, 2008.

[20] A. Dedner, C. Makridakis, and M. Ohlberger. Error control for a class of Runge Kutta Discontinuous Galerkin methods for nonlinear conservation laws. *SIAM J. Numer. Anal.*, 45(2):514-538, 2007.

[21] M. Ohlberger, and J. Vovelle. Error estimate for the approximation of non-linear conservation laws on bounded domains by the finite volume method. *Math. Comp.*, 75:113-150, 2006.

[22] M. Ohlberger. A posteriori error estimates for the heterogeneous multiscale finite element method for elliptic homogenization problems. *Multiscale Model. Simul.: A SIAM Interdisciplinary Journal* 4(1):88-114, 2005.

[23] M. Ohlberger. Higher order finite volume methods on selfadaptive grids for convection dominated reactive transport problems in porous media. *Comput. Visual. Sci.*, 7(1):41-51, 2004.

[24] B. Haasdonk, M. Ohlberger, M. Rumpf, M. Schmidt, and M. Siebert. Multiresolution visualization of higher order adaptive finite element simulations. *Computing* 70 (3): 181-204, 2003.

[25] D. Bürkle, and M. Ohlberger. Adaptive finite volume methods for displacement problems in porous media. *Comput. Visual. Sci.*, 5(2):95-106, 2002.

[26] K.-H. Karlsen, and M. Ohlberger. A note on the uniqueness of entropy solutions of nonlinear degenerate parabolic equations. *J. Math. Anal. and Appl.*, 275(1):439-458, 2002.

[27] R. Klöfkorn, D. Kröner, and M. Ohlberger. Local adaptive methods for convection dominated problems. *Int. J. for Numer. Meth. in Fluids*, 40(1-2):79-91, 2002.

[28] M. Ohlberger, and C. Rohde. Adaptive finite volume approximations for weakly coupled convection dominated parabolic systems. *IMA J. Numer. Anal.*, 22(2):253–280, 2002.

[29] M. Ohlberger. A posteriori error estimates for vertex centered finite volume approximations of convection-diffusion-reaction equations. *M2AN Math. Model. Numer. Anal.*, 35(2):355–387, 2001.

[30] M. Ohlberger. A posteriori error estimates for finite volume approximations to singularly perturbed nonlinear convection-diffusion equations. *Numer. Math.*, 87(4):737–761, 2001.

[31] D. Kröner, and M. Ohlberger. A-posteriori error estimates for upwind finite volume schemes for nonlinear conservation laws in multi dimensions. *Math. Comput.*, 69:25–39, 2000.

[32] M. Ohlberger, and M. Rumpf. Adaptive projection operators in multiresolution scientific visualization. *IEEE Transactions on Visualization and Computer Graphics*, 5(1):74–94, 1999.

[33] L. Grüne, M. Metscher, and M. Ohlberger. Interactive visualization of numerical solutions for optimal control problems. *Comput. Visual. Sci.*, 1(4):221–229, 1999.

[34] M. Ohlberger, and M. Rumpf. Hierarchical and adaptive visualization on nested grids. *Computing*, 59:365–385, 1997.

[35] M. Ohlberger. Convergence of a mixed finite element - finite volume method for the two phase flow in porous media. *East-West J. Numer. Math.*, 5:183–210, 1997.

C) Refereed Conference Proceedings and Book Articles

[36] P. Henning, and M. Ohlberger. A Newton-scheme framework for multiscale methods for nonlinear elliptic homogenization problems. Submitted to Algoritmy 2012, Conference on Scientific Computing, Vysoke Tatry, Podbanske, September 9-14, 2012.

[37] M. Drohmann, B. Haasdonk, and M. Ohlberger. Reduced basis model reduction of parametrized two-phase fow in porous media. Accepted for the proccedings of the 7th Vienna International Conference on Mathematical Modelling (MathMod), Vienna, 2012.

[38] A. Dedner, R. Klöfkorn, M. Nolte, and M. Ohlberger. DUNE-FEM. A general purpose discretization toolbox for parallel and adaptive scientific computing. In: Advances in DUNE. Proceedings of the DUNE User Meeting, held 6.-8.10.2010, in Stuttgart, Germany. A. Dedner, B. Flemisch, R. Klöfkorn (Eds.), Spinger, 2012.

[39] M. Drohmann, B. Haasdonk, and M. Ohlberger. A software framework for reduced basis methods using DUNE-RB and RBMATLAB. In: Advances in DUNE. Proceedings of the DUNE User Meeting, held 6.-8.10.2010, in Stuttgart, Germany. A. Dedner, B. Flemisch, R. Klöfkorn (Eds.), Spinger, 2012.

[40] P. Henning and M. Ohlberger. On the implementation of a heterogeneous multiscale finite element method for nonlinear elliptic problems. In: Advances in DUNE. Proceedings of the DUNE User Meeting, held 6.-8.10.2010, in Stuttgart, Germany. A. Dedner, B. Flemisch, R. Klöfkorn (Eds.), Spinger, 2012.

[41] P. Bastian, H. Berninger, A. Dedner, C. Engwer, P. Henning, R. Kornhuber, D. Kröner, M. Ohlberger, O. Sander, G. Schiffler, N. Shokina, K. Smetana. Adaptive modelling of coupled hydrological processes with application in water management. In: Progress in Industrial Mathematics at ECMI 2010, Springer, Mathematics in Industry, vol. 17. The European Consortium for Mathematics in Industry, 2012.

[42] M. Ohlberger and K. Smetana. A new Hierarchical Model Reduction-Reduced Basis technique for advection-diffusion-reaction problems. In: Proceedings of the V International Conference on Adaptive Modeling and Simulation (ADMOS 2011) held in Paris, France, 6-8 June 2011, International Center for Numerical Methods in Engineering (CIMNE), Barcelona, 365–376, D. Aubry et al. (Eds.), 2011.

[43] M. Drohmann, B. Haasdonk, and M. Ohlberger. Adaptive Reduced Basis Methods for Nonlinear Convection-Diffusion Equations. In: Finite Volumes for Complex Applications VI - Problems & Perspectives, Springer Proceedings in Mathematics 4(1):369–377, J. Fort et al. (Eds.), 2011 (doi: 10.1007/978-3-642-20671-9_39).

[44] K. Mikula, M. Ohlberger. Inflow-Implicit/Outflow-Explicit scheme for solving advection equations. In: Finite Volumes for Complex Applications VI - Problems & Perspectives, Springer Proceedings in Mathematics 4(1):683–691. Eds. J. Fort et al., 2011 (doi: 10.1007/978-3-642-20671-9_72).

[45] B. Haasdonk and M. Ohlberger. Space-adaptive reduced basis simulation for time-dependent problems. In *Proc. of the 6th Vienna International Conference on Mathematical Modelling, February 11 - 13, 2009, Vienna, Austria*.

[46] B. Haasdonk and M. Ohlberger. Efficient reduced models for parametrized dynamical systems by offline/online decomposition. In *Proc. of the 6th Vienna International Conference on Mathematical Modelling, February 11 - 13, 2009, Vienna, Austria*.

[47] M. Drohmann, B. Haasdonk, and M. Ohlberger. Reduced basis method for finite volume approximations of evolution equations on parametrized geometries. Procceedings of the ALGORITMY 2009, Vysoke Tatry, Podbanske March 15-20, 2009.

[48] B. Haasdonk, and M. Ohlberger. Reduced basis method for explicit finite volume approximations of nonlinear conservation laws. Procceedings of the 12th International Conference on Hyperbolic Problems: Theory, Numerics, Application, June 09-13, 2008, College Park, Maryland, USA.

[49] B. Haasdonk, and M. Ohlberger. Adaptive basis enrichment for the reduced basis method applied to finite volume schemes. Procceedings of the 5th International Symposium on Finite Volumes for Complex Applications, June 08-13, 2008, Aussois, France.

[50] R. Klöfkorn, D. Kröner, and M. Ohlberger. Parallel and adpaptive simulation of fuel cells in 3D. Proceedings of *3rd Russian-German Advanced Research Workshop on Computational Science and High Performance Computing*, July 23-27, 2007, Novosibirsk, Russia.

[51] P. Bastian, M. Blatt, C. Engwer, A. Dedner, R. Klöfkorn, S. P. Kuttanikkad, M. Ohlberger, and O. Sander. The distributed and unified numerics environment (DUNE). Proceedings of the 19th Symposium on Simulation Technique in Hannover, September 12 - 14, 2006.

[52] A. Dedner, and M. Ohlberger. A new hp-adaptive DG scheme for conservation laws based on error control. Proceedings of the *Eleventh International Conference on Hyperbolic Problems: Theory, Numerics, Applications, Lyon, France, July 17-21, 2006.*

[53] M. Ohlberger, and B. Schweizer. Modelling of interfaces in unsaturated porous media. Proceedings of *AIMS' Sixth International Conference on Dyn. Systems, Diff. Equations and Applications, Poitiers, France, June 25 - 28, 2006.*

[54] A. Burri, A. Dedner, D. Diehl, R. Klöfkorn, and M. Ohlberger. A general object oriented framework for discretizing nonlinear evolution equations. Proceedings of *The 1st Kazakh-German Advanced Research Workshop on Computational Science and High Performance Computing*, Almaty, Kazakhstan, September 25 - October 1, 2005.

[55] A. Burri, A. Dedner, R. Klöfkorn, and M. Ohlberger. An efficient implementation of an adaptive and parallel grid in DUNE. Proceedings of *The 2nd Russian-German Advanced Research Workshop on Computational Science and High Performance Computing*, Stuttgart, March 14 - 16, 2005.

[56] M. Ohlberger. Error control for approximations of non-linear conservation laws. Proceedings of *The International Symposium on Finite Volumes for Complex Applications IV*, Marrakech, July 4-8, 2005.

[57] A. Dedner, C. Makridakis, and M. Ohlberger. A new stable Discontinuous Galerkin approximation for non–linear conservation laws on adaptively refined grids. Proceedings of the *Third MIT Conference on Computational Fluid and Solid Mechanic*, Cambridge, MA, June 14-17, 2005.

[58] P. Bastian, M. Droske, C. Engwer, R. Klöfkorn, T. Neubauer, M. Ohlberger, and M. Rumpf. Towards a unified framework for scientific computing. Proceedings of the 15th International Conference on Domain Decomposition Methods, Berlin, July 21-25, 2003.

[59] K. Kühn, M. Ohlberger, J. O. Schumacher, C. Ziegler, and R. Klöfkorn. A dynamic two-phase flow model of proton exchange membrane fuel cells. Proceedings of the 2nd EUROPEAN PEFC FORUM, Luzern, 283-296, European Fuel Cell Forum 1, 2003.

[60] T. Barth, and M. Ohlberger. Finite volume methods: foundation and analysis. In: E. Stein, R. de Borst, T.J.R. Hughes (Eds.). *Encyclopedia of Computational Mechanics*, John Wiley & Sons, Ltd, 2004.

[61] R. Herbin, and M. Ohlberger. A posteriori error estimate for finite volume approximations of convection diffusion problems. In *Proceedings of the Third International Symposium on: FINITE VOLUMES FOR COMPLEX APPLICATIONS - PROBLEMS AND PERSPECTIVES, Porquerolles (2002)*, 753–760. Hermes Science Publications, Paris, 2002.

[62] M. Küther, and M. Ohlberger. Adaptive second order central schemes on unstructured staggered grids. In *Hyperbolic Problems: Theory, Numerics, Applications*, Hou T.Y., Tadmor, E. (Eds.), Proceedings of the Ninth International Conference on Hyperbolic Problems held in Caltech, Pasadena, March 25-29, 2002, 675-684, Springer Berlin/Heidelberg/New York, 2003.

[63] D. Kröner, M. Küther, M. Ohlberger and C. Rohde. A posteriori error estimates and adaptive methods for hyperbolic and convection dominated parabolic conservation laws. In: *Trends in Nonlinear Analysis* M. Kirkilionis, S. Krömker, R. Rannacher, F. Tomi (Eds.). 289-306, Springer, 2001.

[64] M. Ohlberger. Adaptive mesh refinement for single and two phase flow problems in porous media. In *Proceedings of the 2nd International Symposium on: FINITE VOLUMES FOR COMPLEX APPLICATIONS - PROBLEMS AND PERSPECTIVES, Duisburg (1999)*, 761–768. Hermes Science Publications, Paris, 1999.

[65] M. Ohlberger. Mixed finite element - finite volume methods for two phase flow in porous media. In *Proceedings of the 4th International Conference on NUMERICAL METHODS and APPLICATIONS, Sofia (1998)*, 461–469. World Scientific Publishing Co. Pte. Ltd., Signapore, New Jersey, London, Hong Kong, 1999.

[66] R. Neubauer, M. Ohlberger, M. Rumpf, and R. Schwörer. Efficient visualization of large-scale data on hierarchical meshes. In *Visualization in Scientific Computing '97*, 125–137. Springer, 1997.

D) Edited Books and Miscellaneous

[67] J. Fuhrmann, B. Haasdonk, E. Holzbecher, and M. Ohlberger. Guest editorial for a special issue on modelling and simulation of PEM-FC. Journal of Fuel Cell Science and Technology, 2008.

[68] M. Ohlberger. A posteriori error estimates and adaptive methods for convection dominated transport processes. *Doctoral Thesis*, Mathematische Fakultät, Universität Freiburg, 2001. Published online at *Freiburger Dokumentenserver*, *http://www.freidok.uni-freiburg.de/volltexte/178*, Freiburg, 2001.

[69] T. Geßner, B. Haasdonk, R. Kende, M. Lenz, M. Metscher, R. Neubauer, M. Ohlberger, W. Rosenbaum, M. Rumpf, R. Schwörer, M. Spielberg, and U. Weikard. A Procedural Interface for Multiresolutional Visualization of General Numerical Data. Report 28, SFB 256, Bonn, 1999.

[70] M. Ohlberger, and R. Schwörer. Challenges in Fluid Dynamics. *In: VideoMath-Festival at ICM '98:* H.-C. Hege, K. Polthier (Eds.), Springer, Berlin/Heidelberg, 1998.

[71] D. Kröner, M. Ohlberger, and C. Rohde (Volume Eds.). An Introduction to Recent Developments in Theory and Numerics for Conservation Laws. In: Lecture Notes in Computational Science and Engineering: M. Griebel, D. Keyes, R. Nieminen, D. Roose, T. Schlick (Eds.) Springer, Berlin/Heidelberg, 1998.

[72] M. Ohlberger. Konvergenz eines Gemischte Finite Elemente - Finite Volumen Verfahrens für den Zweiphasenfluß in porösen Medien. Diplomarbeit, Institut für Angewandte Mathematik, Universität Freiburg, 1996 (unpublished).

Teaching Experience (incomplete)

Spring 2011	Course and exercises *Numerics for PDEs I*; MA-Seminar *Model reduction*; Practical course *Nonlinear modeling in the sciences*
Fall 2010	Course and exercises *Numerical Analysis*; BA-Seminar *Applied mathematics*; Practical course *Nonlinear modeling in the sciences*
Sping 2010	Course and exercises*Introduction to numerical analysis*; Practical course *Nonlinear modeling in the sciences*
Fall 2009	Course and exercises *Scientific computing*; Seminar *Model reduction for partial differential equations*
Spring 2009	Course, exercise and programming course *Numerics for PDEs II*; Seminar *Adaptive Modelling*
Fall 2008	Course, exercise and programming course *Numerics for PDEs I*; Seminar *Modelling and Simulation*
Fall 2008	Course, exercise and programming course *Numerical methods for partial differential equations I*; Seminar *Modeling and simulation*
Spring 2008	Course and exercise *Higher numerical analysis*; Programming course *Scientific computing*; Seminar *Efficient numerical schemes and model reduction*
Fall 2007	Course and exercise *Introduction to numerical analysis*; Programming course *Scientific computing*; Seminar *Flow in porous media and homogenization*
Spring 2007	Course and exercises *Numerics for partial differential equations II* Seminar *Applied Mathematics*
Fall 2006	Course *Theory and Numerics for PDEs III*; Course *Scientific Computing*; Seminar *Modeling and Simulation*
Fall 2005	Course *Differential Equations for Engineers*; Seminar *Partial Differential Equations*
Spring 2005	Course *Numerical Analysis II.*
Fall 2004	Exercise accompanying a course *Numerical Analysis I.*
Spring 2004	Exercise accompanying a course *Analysis II.*; Seminar modeling and simulation 0f fuel cells.
Fall 2003	Exercise accompanying a course *Analysis I.*; Working group hyperbolic conservation laws.
Fall 2002	Seminar *Applied mathematics*; Programming course *Numerics for Partial Differential Equations.*
Spring 2002	Course *Mathematical modeling and numerics for porous media flow problems*.
Fall 2001	Undergraduate level seminar *Mathematical Modeling*.
Spring 2001	Exercises accompanying a course *Functional Analysis II*.
Fall 2000	Exercises accompanying a course *Functional Analysis I*.
Spring 2000	Programming course *Parallel methods for the solution of scalar conservation laws*.
Spring 1999	Graduate level seminar *Mathematical Modeling*.
Fall 1998	Exercises accompanying a course *Ordinary differential equations*.
Spring 1998	Programming course *Robust finite element and finite volume methods for convection dominated PDE's*.

Current and previous research projects/grants

2009 – 2012	DFG project: *Multi-scale analysis of two-phase flow in porous media with complex heterogeneities*.
2009 – 2012	DFG project: *Reduced basis methods for model reduktion of non-linear parametrized evolution equations*.
2010 – 2011	DFG CRC656, PM09: *Modellierung der Blutströmung für ein Atherosklerose-Modell*.
2007 – 2010	BMBF project: *AdaptHydroMod: Adaptive hydrological modeling with application in water resource management*.
2005 – 2008	DFG - CNRS Research Group: Micro-macro modelling and simulation of liquid-vapour flows.
2005 – 2008	BMBF project: *Modellierung und Simulation von PEM-Brennstoffzellen und Brennstoffzellenstacks unter Verwendung moderner numerischer Methoden.*
2005 – 2006	Adam Opel GmbH:*Berechnung des in-plane Transportes von flüssigem Wasser in Luft in einem unbehandelten Standard-Diffusionsmedium.*
2004 – 2007	BMBF project:*Dreidimesionale Simulation von Brennstoffzellen.*
2002 – 2005	Foundation of the land Baden-Württemberg: Grant for the research project *Adaptive Mehrskalenalgorithmen fr konvektionsdominante Strömungen in homogenisierten Medien* within the Eliteförderprogramm für Postdoktoranden
1999 – 2002	GRS – BMBF project: *Entwicklung eines Programmes zur dreidimensionalen Modellierung des Schadstofftransportes.*
2001 – 2005	EU: Member of the *Research Training Network (RTN) on HYperbolic and Kinetic Equations : Asymptotics, Numerics, Analysis (HYKE)*.
1997 – 1998	DFG project: *Selbstadaptivität und Visualisierung in 3D*.
1995 – 1997	GRS – BMBF project: *Entwicklung eines schnellen Programms zur Modellierung von Grundwasserströmungen mit variabler Dichte.*

Overview on software development

2005 to present	Development of *RBmatlab* and *Dune-RB*, two libraries for implementing reduced basis methods (see www.morepas.org). In collaboration with the group of B. Haasdonk (Stuttgart).
2003 to present	Developer of *DUNE* - a new object oriented package for scientific computing (see www.dune-project.org). In collaboration with the teams of D. Kröner (Freiburg), P. Bastian (Heidelberg) and R. Kornhuber (Berlin).
2003 to present	Developer of the numerical toolbox *fc-2p* for the simulation of fuel cells.
1995 to 2007	Developer of the GRAphics Programming Environment *GRAPE*. In cooperation with the team of M. Rumpf, Duisburg.
1995 to 2005	Developer of the numerical toolbox *Gflow* for the approximation of density driven and two phase flow problems in porous media.

Activities as a referee or editor

Member of the editorial board

SIAM Journal on Scientific Computing, International Journal of Computing Science and Mathematics, International Journal on Finite Volumes, ISRN Applied Mathematics

Referee for mathematical journals

Numerische Mathematik, SIAM Journal on Numerical Analysis, SIAM Journal on Scientific Computing, Mathematics of Computation, Journal of Mathematical Analysis and Applications, Computing and Visualization in Science, Computer Methods in Applied Mechanics and Engineering, ESAIM: Mathematical Modelling and Numerical Analysis, International Journal for Numerical Methods in Engineering, Numerical Methods for Partial Differential Equations, Advances in Water Resources, IMA Journal of Numerical Analysis, Journal of Engineering Mathematics, Applied Numerical Mathematics, Journal of Computational Physics, Journal of Computational and Applied Mathematics, Journal of Scientific Computing, Journal of The Electrochemical Society

Referee for science foundations

Schweizerischer Nationalfond (Schweiz), National Science Foundation (USA), National Fund For Scientific & Technological Development (Chile), De Nederlandse Organisatie voor Wetenschappelijk Onderzoek (Niederlande), Academy of Finland and Tekes (Finland), Ministery for Education (Greece)

Conferences and Workshops

2011

1. Workshop on Numerical Analysis of Multiscale Problems & Stochastic Modelling. **Invited talk,** Model reduction for multiscale problems. (RICAM, Linz, 12.-16.12.2011)

2. Journees Scientifiques du GNR MOMAS. **Invited talk,** Error control and adaptivity for numerical multiscale methods. (CIRM, Marseille, 2.-4.11.2011)

3. CEMRACS 2011 Summer School. **Three invited talks,** A posteriori error estimates and adaptation for multiscale problems. (CIRM, Marseille, 18.-22.7.2011)

4. International Conference on Simulation Technology 2011. **Invited talk,** Complexity Reduction and Error Control for Partial Differential Equations. (Stuttgart, 14.-17.6.2011)

5. The International Symposium on Finite Volumes for Complex Applications VI. **Talk,** Inflow-Implicit/Outflow-Explicit scheme for solving advection equations. (Prag, 6.-10.6.2011)

6. Spring School on Evolution Equations. **Three invited talks,** Error Estimates and Adaptivity for Approximations of Conservation Laws. (Konstanz, 4.-7.4.2011)

7. SIAM Conference on Computational Science and Engineering. **Invited minisymposium talk,** Empirical Operator Interpolation for Reduced Basis Approximations of Nonlinear Evolution Equations (Reno, 28.2.-4.3.2011)

8. Workshop on Topics in Mathematical Fluid Dynamics. **Invited talk,** Error Control and Adaptive Model Reduction (Freiburg, 11.-12.2.11)

9. Workshop on Model Order Reduction in Optimization and Control with PDEs. **Invited talk,** Empirical interpolation of nonlinear operators in model reduction of parameterized evolution equations (Berlin, 26.-28.1.11)

2010

10. Workshop on Reduced Basis Methods. **Co-organizer** (Ulm, 7.-8.12.10)

11. Workshop on Discretization Methods for Viscous Flows. **Invited talk:** A New Inflow-Implicit/Outflow-Explicit Finite Volume Method for Solving Variable Velocity Advection Equations. (Carry le Rouet, 8.-10.9.10)

12. Workshop on A posteriori error estimates and mesh adaptivity for evolutionary nonlinear problems. **Invited talk:** Error Control and Adaptivity for Reduced Basis Approximations of Parametrized Evolution Equations. (Paris, 7.8.10)

13. Fifth European Conference on Computational Fluid Dynamics **Organizer of a minisymposium:** Model Order Reduction of Complex Systems in CFD. (Lisbon, 14.-17.6.10)

2009

14. International Workshop on Coupled Models in Energy, Hydrological and Climate Research. **Scientific committee** (WIAS Berlin, 8.-9.10.09)

15. International Workshop on Model Reduction of Parametrized Systems. **Organizer and poster presentation:** Adaptivity and aspects of implementation for the reduced basis method applied to parametrized evolution equations. (Münster, 16.-18.9.09)

16. SIAM Conference on Mathematical & Computational Issues in the Geosciences. **Organizer of two minisymposia:** Modeling and Simulation of Coupled Surface and Groundwater Flow. (Leipzig, 15.-18.6.09)

2008

17. Oberwolfach Workshop on Hyperbolic Conservation Laws. **Invited talk:** Reduced Basis Methods for Non-Linear Conservation Laws. (Oberwolfach, 7.-13.12.08)

18. CeNoS-Workshop. **Talk:** Adaptive modelling and model reduction for multi scale problems. (Münster, 28.11.08)

19. 4th Workshop on Numerical Methods for Evolution Equations. **Invited talk:** Reduced basis methods for evolution equations. (Heraklion, Crete, 26.-27.9.08)

20. 5th International Symposium on Finite Volumes for Complex Applications. **Talk:** Adaptive basis enrichment for the reduced basis method applied to finite volume schemes. (Aussois, 9.-13.6.08)

21. IEA-AGHSET Workshop on *Basic Science for Energy*. **Invited talk:** Mathematical challenges in model based design of PEM fuel cells . (Paris, 6.-7.5.08)

2007

22. Computational Methods with Applications. **Invited talk:** Efficient simulation of convection diffusion equations. (Harrachov, 19.-25.8.07)

2006

23. Workshop on Modelling and Simulation of PEM Fuel Cells. **Organizer**, (WIAS Berlin, 18.9.-20.9.06)

24. Eleventh International Conference on Hyperbolic Problems: Theory, Numerics, Applications. **Invited talk:** *Error control and adaptivity for convection dominated problems.* (Lyon, 17.7.-21.7.06)

25. ZWF-Symposium. **Talk:** *Strömungen in porösen Medien: Modellierung, Simulation und Anwendungen.* (Zentrum für Wasserforschung, Freiburg, 30.5.06/2.6.06)

2005

26. DFG-CNRS Workshop: Micro-Macro Modelling and Simulation of Liquid-Vapour Flows. (Kirchzarten, 16.11.-18.11.05)

27. Program “Wave Motion” . **Invited talk:** *A posteriori error control for approximations of non-linear conservation laws.* (Mittag-Leffler Institut, Stockholm, 5.9.-30.9.05)

28. Fourth International Symposium: FINITE VOLUME FOR COMPLEX APPLICATIONS. **Invited talk:** *Error control for approximations of nonlinear conservation laws.* (Marrakech, 4.7.-8.7.05)

29. Third M.I.T. Conference on Computational Fluid and Solid Mechanics.
Invited minisymposium talk: *A new stable discontinuous Galerkin approximation for non-linear conservation laws on adaptively refined grids .*
Invited minisymposium talk: *A posteriori error estimates for the heterogeneous multiscale finite element mehtod for elliptic homogenization problems.*
(M.I.T., Cambridge, USA, 14.6.-17.6.05)

2004

30. Workshop on Numerical Methods for Evolution Equations. **Talk:** *Error estimates for finite volume approximations of non-linear conservation laws on bounded domains.* (Heraklion, Crete, 24.9.-25.9.04)

31. Workshop on Hyperbolic Conservation Laws. **Invited talk:** *Error estimate for the approximation of non-linear conservation laws on bounded domains by the finite volume method.* (Oberwolfach, 4.4.-10.4.04)

2003

32. Workshop on RF-Ablation. **Talk:** *Hierarchic Modeling for heat transport with perfusion.* (Bremen, 18.12.03)

33. Workshop on Modeling and Simulation of Liquid-Vapor Flows. **Talk:** *Macroscopic two phase flow based on diffuse interface model at the micro scale.* (Kirchzarten, 15.7.-16.7.03)

34. Workshop on Perspectives on incompressible flows. Comparison of different computational strategies. **Invited talk:** *Efficient finite volume methods: From a posteriori error estimates to fuel cell simulations.* (CSCAMM, College Park, USA, 7.4.-11.4.03)

35. GAMM Conference 2003. Invited organizer of a minisymposium on *Upscaling*. (Abano Terme - Padua, Italy, 24.3.-28.3.03)

36. SIAM Conference on Mathematical and Computational Issues in the Geosciences.
Invited minisymposium talk: *Efficient simulation of contaminant transport with biodegradation in porous media.*
Invited minisymposium talk: *Discretization and a posteriori error control for radio nuclide transport with nonlinear adsorption in the subsoil.*
(Austin, USA, 17.3.-20.3.03)

2002

37. Adaptive Methods for Evolution Problems. **Invited talk:** *Higher order finite volume methods on selfadaptive grids for convection dominated reactive transport problems in porous media.* (Strasbourg, 25.1.-27.11.02)

38. Numerical Methods for Evolution Equations. **Talk:** *Higher order finite volume methods on selfadaptive grids for convection dominated reactive transport problems in porous media.* (Heraklion, Crete, 20.9.-21.9.02)

39. ALGORITMY 2002. **Invited talk:** *A posteriori error estimates and adaptive methods for finite volume approximations of convection dominated porous media flow problems.* (Podbanske, Slovakia, 8.9.-13.9.02)

40. Third International Symposium on: FINITE VOLUMES FOR COMPLEX APPLICATIONS - PROBLEMS AND PERSPECTIVES. **Talk:** *A posteriori error estimate for finite volume approximations of convection diffusion problems.* (Porquerolles, 24.6.-28.6.02)

41. Conference on Discontinuous Galerkin Methods. **Invited talk:** *Second order central schemes on adaptive unstructured grids.* (Oberwolfach, 21.4.-26.4.02)

42. Ninth International Conference on Hyperbolic Problems: Theory, Numerics, Applications. **Talk:** *Adaptive second order central schemes on unstructured staggered grids.* (Pasadena, California, 25.3.-29.3.02)

43. Annual ANumE Conference 2002. **Invited talk:** *Adaptive finite volume methods for convection dominated problems* (Freiburg, 4.2.-6.2.02)

2001

44. SMAI, 1er congres national de mathematiques appliquees et industrielles. **Invited minisymposium talk:** *Adaptive finite volume approximations for weakly coupled convection dominated parabolic systems* (Pompadour, Frankreich, 28.5.-1.6.01)

45. Sixth SIAM Conference on Mathematical and Computational Issues in the Geosciences. **Invited minisymposium talk:** *A posteriori Error Estimates and Adaptive Methods for Reactive Transport Problems in Porous Media* (Boulder, USA,11.6.-14.6.01)

46. Workshop on Adaptive Methods for Flow Computation. **Talk:** *Adaptive finite volume approximations for convection dominated transport problems* (Heidelberg, 22.10.-24.10.01)

47. Open Problems of Direct Methanol Fuel Cells (DMFC). **Talk:** *3D Modelling of PEM fuel cells* (Berlin, 23.11.-24.11.01)

48. 11. GAMM Workshop on Numerical Methods in Fluid Mechanics. **Poster:** *Adaptive Finite Volume Schemes for Convection Dominated Flow Problems* (Kirchzarten, 26.11.-27.11.01)

2000

49. Eighth International Conference on Hyperbolic Problems: Theory, Numerics, Applications. **Talk:** *A posteriori error estimates for finite volume approximations to singularly perturbed convection diffusion equations and conservation laws* (Magdeburg, 28.2.-3.3.00)

50. Workshop on Computational Methods for Real Gas Flow. (Kirchzarten, 18.4.-20.4.00)

51. Trends in Nonlinear Analysis. **Invited minisymposium talk:** *A posteriori error estimates for vertex centered finite volume approximations of convection-diffusion-reaction equations* (Heidelberg, 8.10. - 12.10.00)

52. Conference on Hyperbolic Conservation Laws. **Invited talk:** *A posteriori error estimates for implicit vertex centered finite volume approximations of nonlinear convection-diffusion-reaction equations* (Oberwolfach, 22.10.-27.10.00)

53. International Conference on Modelling and Computation in Environmental Sciences. **Talk:** *Adaptive finite volume methods for displacement problems in porous media* (Bad Herrenalb, 30.10.-2.11.00)

1999

54. Summer School on Subsurface Modeling: Multiphase Flow, Transport and Bioremediation. (Braunschweig, 1.3.-5.3.99)

55. Finite Volumes for Complex Applications. **Talk:** *Adaptive mesh refinement for single and two phase flow problems in porous media* (Duisburg, 19.7.-22.7.99)

56. GAMM Workshop on Numerical Methods in Fluid Mechanics. (Kirchzarten, 27.9.-28.9.99)

57. Interphase '99 Workshop on Numerical Methods for Free Boundary Problems. (Freiburg, 14.10.-16.10.99)

1998

58. WORKSHOP on ADAPTIVE METHODS for DIFFERENTIAL EQUATIONS. **Talk:** *A posteriori error estimates for upwind finite volume schemes for nonlinear conservation laws in multi dimensions* (Stockholm, Sweden, 30.3.-1.4.98)

59. Time-Dependent Magnetohydrodynamics: Analytical, Numerical, and Application Aspects. (Kirchzarten, 20.7.-22.7.98)

60. 4th International Conference on Numerical Methods and Applications. **Invited minisymposium talk:** *Mixed finite element – finite volume methods for two phase flow in porous media* (Sofia, Bulgaria, 19.8.-23.8.98)

61. Workshop on Adaptive Finite Element Methods and Optimization. (Heidelberg, 19.11.-21.11.98)

1997

62. First Euro-Conference 1997, Hyperbolic Conservation Laws. **Poster:** *A mixed finite element - finite volume method for the two phase flow in porous media* (Lyon, 5.2.-7.2.97)

63. Workshop on Hybrid Methods for Bifurcation and Dynamics in Partial Differential Equations. **Invited talk:** *Visualization in fluid dynamics and elasticity* (Marburg, 9.6.-11.6.97)

64. Workshop on Domain Decomposition and Multifields in Fluid and Solid Mechanics. **Talk:** *Convergence of a mixed finite element – finite volume method for the two phase flow in porous media* (Hirschegg, 3.11.-8.11.97)

65. Fifth Winter School, Mathematical Theory in Fluid Mechanics. **Talk:** *Convergence of a mixed finite element – finite volume method for the two phase flow in porous media* (Paseky, Tschechiche Republik, 6.12.-14.12.97)

1996

66. Workshop Visualization in Physics. **Talk:** *Hierarchical and Adaptive Visualization of Unstructured Grid Data* (Bielefeld, 22.2.-23.2.96)

67. DMV Jahrestagung 1996. **Talk:** *Konvergenz eines Gemischte Finite Elemente - Finite Volumen Verfahrens für den Zweiphasenfluß in porösen Medien* (Jena, 15.9.-21.9.96)

68. International Summer School on Scientific and Mathematical Visualization. (Ettenheim, 23.9.-27.9.96)

Invited Talks at Research Institutes

2011

1. Oberseminar Angewandte Analysis, TU Dortmund, 17.11.2011. **Talk:** *Error estimates and adaptivity for conservation laws and degenerate parabolic problems*

2010

2. SFB 611 Seminar, Bonn, 18.5.2010. **Talk:** *Complexity reduction and error control for evolution equations*

3. Fraunhofer ITWM, Kaiserslautern, 11.3.2010 **Talk:** *Complexity reduction and error control for evolution equations*

2009

4. Mathematics Department, University of Sussex, 12.11.2009. **Talk:** *Reduced basis methods for parametrized evolution equations*

5. Oberseminar Numerik, Universität Bielefeld, 15.5.2009. **Talk:** *Reduzierte Basis Techniken für parametrisierte nichtlineare Evolutionsgleichungen*

6. Kolloquium der Fakultät für Mathematik, Universität Karlsruhe (TH), 27.1.2009. **Talk:** *Modellreduktion für Parametrisierte Partielle Differentialgleichungen*

2008

7. Fachbereich Mathematik, TU Darmstadt, 24.4.2008. **Talk:** *Effiziente numerische Methoden in der Brennstoffzellenforschung*

2007

8. Center for Nonlinear Science, Universität Münster, 4.12.2007. **Talk:** *Effziente numerische Methoden für nichtlineare Strömungsprozesse in porösen Medien*

2006

9. Institut für Mathematik, HU Berlin, 18.11.2006. **Talk:** *Fehlerkontrolle und Adaptivität für konvektionsdominante Probleme: Modellierung, Analysis, Simulation und Anwendungen*

10. Institut für Mathematik, TU Berlin, 14.10.2006. **Talk:** *Fehlerkontrolle und Adaptivität für konvektionsdominante Probleme: Modellierung, Analysis, Simulation und Anwendungen*

11. Fachbereich Mathematik, Universität Bonn, 27.9.2006. **Talk:** *Fehlerkontrolle und Adaptivität für konvektionsdominante Probleme*

12. Fakultät für Mathematik, Universität Bielefeld, 16.6..06. **Talk:** *Fehlerkontrolle für konvektionsdominante Probleme: Von A-Posteriori Theorie bis Brennstoffzellensimulation*

13. Mathematisches Kolloquium, Ruhr-Universität Bochum, 26.4.06. **Talk:** *Fehlerkontrolle für konvektionsdominante Probleme: Von A-Posteriori Theorie bis Brennstoffzellensimulation*

2005

14. Fachbereich Mathematik und Informatik, Universität Münster, 7.12.2005. **Talk:** *Konvektionsdominante Probleme: Von A-Posteriori Theorie bis Brennstoffzellensimulation*

15. Fachrichtung Mathematik, TU-Dresden, 17.10.05. **Talk:** *Konvektionsdominante Strömungen: Von A-Posteriori Theorie bis Brennstoffzellensimulation*

16. Fachbereich Mathematik und Informatik, FU-Berlin und WIAS, 20.05.05. **Talk:** *Adaptive Finite Volumen Methoden: Von A-Posteriori Theorie bis Brennstoffzellensimulation*

17. Departement Mathematik, Universität Basel, 13.5.05. **Talk:** *Error estimates for HM–FEM approximations of elliptic homogenization problems*

18. Seminar für Didaktik, Universität Freiburg, 10.05.05. **Talk:** *Modellierung und Simulation von makroskopischen Phänomenen basierend auf mikroskopischen Modellen*

19. SAM, ETH-Zürich, 11.04.05. **Talk:** *Error estimates for HM–FEM approximations of elliptic homogenization problems*

20. Technische Universität München, 17.02.05. **Talk:** *Flow in Porous Media: Analysis, Simulation, and Applications*

2004

21. Universität Stuttgart, 19.11.04. **Talk:** *Strömungen in porösen Medien: Modellierung, Analysis, Simulation und Anwendungen*

22. Humboldt-Universität, Berlin, 10.6.04. **Talk:** *Modeling, analysis, and simulation of flow in porous media*

23. Freiburg-Seminar, Richard-Fehrenbach-Schule Freiburg, 6.5.04. **Talk:** *Modellierung und Simulation von Stömungen in porösen Medien*

2003

24. Department of Mathematics, University of Maryland, College Park, 18.11.03. **Talk:** *Error estimates for finite volume approximations of non-linear conservation laws on bounded domains*

25. PACM, Princeton University, 10.11.03. **Talk:** *A posteriori error estimates and adaptivity for convection dominated flow problems*

26. Fachbereich Mathematik und Statistik, Universität Konstanz, 31.10.03. **Talk:** *A posteriori Fehlerabschätzungen und adaptive Methoden für konvektionsdominante Strömungsprobleme*

27. Department of Mathematics, University of Maryland, College Park, 13.05.03. **Talk:** *Robust a posteriroi error estimates for convection dominated weakly coupled parabolic systems*

2002

28. Institut für Mathematik II, FU Berlin, 29.11.02. **Talk:** *Efficient finite volume methods for convection dominated flow in porous media*

29. Institut für Mathematik, Clausthal, 15.11.02. **Talk:** *Adaptive finite volume methods with applications in porous media flow*

30. Institut für Mathematik, Augsburg, 28.10.02. **Talk:** *Adaptive finite volume methods with applications in porous media flow*

31. Institut für Angewandte Mathematik, Erlangen, 9.7.02. **Talk:** *Adaptive finite volume approximations of convection dominated reactive transport problems in porous media*

32. Institut für Chemische Verfahrenstechnik, Stuttgart, 3.5.02. **Talk:** *Adaptive methods for the simulation of water-gas flow in PEM fuel cells*

33. Institut für Wasserbau, Stuttgart, 25.4.02. **Talk:** *Adaptive finite volume methods for transport and displacement problems in porous media*

34. MPI Leipzig, 21.1.-23.1.02. **Talk:** *A posteriori error estimates and adaptive finite volume approximations for convection dominated transport problems*

35. RWTH Aachen, 17.1.-18.1.02. **Talk:** *A posteriori error estimates and adaptivity for implicit finite volume approximations of convection-diffusion-equations*

2001

36. Fraunhofer ISE in Freiburg, 18.12.01. **Talk:** *Dreidimensionale Simulation von PEM–Brennstoffzellen*

37. Universität Basel, 7.12.01. **Talk:** *A posteriori error estimates and adaptive finite volume approximations for convection dominated transport problems*

38. Universität Strassburg, 30.10.01. **Talk:** *A posteriori error estimates for finite volume approximations of hyperbolic and convection dominated parabolic problems*

39. Universität Marseille, 27.4.-29.5.01. **Talk:** *Adaptive finite volume approximations for weakly coupled convection dominated parabolic systems*

2000

40. WIAS Berlin, 8.2.-11.2.00. **Talk:** *A posteriori error estimates for finite volume approximations of scalar conservation laws and singularly perturbed problems*

41. Universität Magdeburg, 7.2.-8.2.00. **Talk:** *A posteriori error estimates for finite volume approximations of scalar conservation laws and singularly perturbed problems*

1999

42. Universität Bonn, 7.12.-9.12.99. **Talk:** *A posteriori error estimates for finite volume approximations of scalar conservation laws and singularly perturbed problems*

Organizer of the following events

1. Workshop on *Topics in Mathematical Fluid Dynamics* (Freiburg, 11.-12.2.11)

2. Workshop on *Reduced Basis Methods* (Ulm, 7.-8.12.10)

3. Minisymposium *Model Order Reduction of Complex Systems in CFD*, ECCOMAS CFD 2010 (Lisbon, 14.-17.6.10)

4. International Workshop on Model Reduction of Parametrized Systems (Münster, 16.-18.9.09)

5. Two Minisymposia on *Modeling and Simulation of Coupled Surface and Groundwater Flow*, SIAM GS09 (Leipzig, 15.-18.6.09)

6. Workshop on Modelling and Simulation of PEM Fuel Cells (WIAS Berlin, 18.9.-20.9.06)

7. Minisymposium *Upscaling*, GAMM-Jahrestagung (Abano Terme, 24.3.-28.2.03)

8. INTERNATIONAL SPRINGSCHOOL on VISUALIZATION (Bonn-Röttgen, 20.3.-24.3.00)

9. Learnshop on SCIENTIFIC VISUALIZATION ’98 (Bonn, 25.2.98-27.2.98)

10. International School on Theory and Numerics for Conservation Laws (Freiburg, 19.10.-24.10.97)