Curriculum Vitae
Prof. Dr. Mario Ohlberger

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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: April 5th, 2001; Advisor: 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

2014 to present	Member of the Center for Multiscale Theory and Computation (CMTC) at WWU Münster
2011 to present	Member of the board of the Center for Nonlinear Science (CeNoS) at WWU Münster
2008 to present	Managing director of the Institut für Numerische und Angewandte Mathematik, Westfälische Wilhelms-Universität Münster
2007 to present	Universtät Münster, Institut für Numerische u. Angewandte Mathematik and Center for Nonlinear Science, Full Professor (W3)
2007 to 2015	Member of the board *Competence for Computing in Science (CoCoS)* at WWU Münster
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

Academic administration

2014 to present	Deputy member of the senate at WWU Münster
2014 to present	Chairman of the "IV-Lenkungsausschuß" at WWU Münster
2010 to present	Member of the "Rektoratskommission für Strategische Planung und Qualtitätssicherung" at WWU Münster
2008 – 2010	Member of the "Senatskommission für Forschung, Personal und Internationales" at WWU Münster
2008 to present	Public relations coordinator of the department
2007 to present	Member of the "Fachbereichsrat" and many other commissions of the department for mathematics and computer sciences at WWU Münster

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

July 2012	Offered a W3 professorship for scientific computing at the Rheinische Friedrich-Wilhelms Universität Bonn and Fraunhofer SCAI (declined)
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)

Münster, July 14, 2016

Prof. Dr. Mario Ohlberger

Research profile

- A posteriori error analysis and adaptive numerical methods
- Adaptive modeling and model reduction
- Reduced basis methods for parameterized evolution problems
- Numerical multiscale methods
- Convection dominated partial differential equations
- Degenerate parabolic partial differential equations
- Theory and numerics for conservation laws
- Multiresolution visualization of numerical data
- Software development and scientific computing
- Modeling of fuel cells and batteries
- Adaptive hydrological modeling
- Optimal design of multiscale processes
- Baysian inversion for connectivity analysis of neuronal networks
- Mathematical modelling and simulation in biology and medicine

List of Publications

A) Preprints

[1] M. Ohlberger, S. Rave, F. Schindler True Error Control for the Localized Reduced Basis Method for Parabolic Problems. newblock Applied Mathematics Muenster, University of Muenster arXiv:1606.09216 [math.NA], Preprint (Submitted) - june 2016.

[2] M. Ohlberger, S. Rave. Localized Reduced Basis Approximation of a Nonlinear Finite Volume Battery Model with Resolved Electrode Geometry. newblock Applied Mathematics Muenster, University of Muenster arXiv:1606.05070 [math.NA], Preprint (Submitted) - june 2016.

[3] A. Buhr, C. Engwer, M. Ohlberger, S. Rave. ArbiLoMod: Local Solution Spaces by Random Training in Electrodynamics. Applied Mathematics Muenster, University of Muenster arXiv:1606.06206 [math.NA], Preprint (Submitted) - june 2016.

[4] C. Himpe, and M. Ohlberger. Cross-Gramian-Based Model Reduction: A Comparison. Applied Mathematics Muenster, University of Muenster, arXiv (math.OC) 1606.03954, Preprint (submitted) - june 2016.

[5] M. Ohlberger, B. Verfürth. Analysis of multiscale methods for the two-dimensional Helmholtz equation with highly heterogeneous coefficient. Part I. Homogenization and the Heterogeneous Multiscale Method. Applied Mathematics Muenster, University of Muenster arXiv:1605.03400 [math.NA], Preprint (Submitted) - may 2016.

[6] M. Ohlberger, B. Verfürth. Analysis of multiscale methods for the two-dimensional Helmholtz equation with highly heterogeneous coefficient. Part II. Two-scale Localized Orthogonal Decomposition. Applied Mathematics Muenster, University of Muenster arXiv:1605.03410 [math.NA], Preprint (Submitted) - may 2016.

[7] A. Buhr, C. Engwer, M. Ohlberger, S. Rave. ArbiLoMod, a Simulation Technique Designed for Arbitrary Local Modifications. Applied Mathematics Muenster, University of Muenster arXiv:1512.07840 [math.NA], Preprint (Submitted) - december 2015.

[8] P. Henning, M. Ohlberger, B. Verfürth. A new Heterogeneous Multiscale Method for time-harmonic Maxwell's equations based on divergence-regularization. Applied Mathematics Muenster, University of Muenster arXiv:1509.03172 [math.NA], Preprint (Submitted) - september 2015.

[9] C. Himpe, and M. Ohlberger. A Note on the Cross Gramian for Non-Symmetric Systems Applied Mathematics Muenster, University of Muenster, arXiv (math.OC) 1501.05519, Preprint (submitted) - january 2015.

B) Publications in Academic Journals

[10] K. Smetana, and M. Ohlberger. Approximation of skewed interfaces with tensor-based model reduction procedures: application to the reduced basis hierarchical model reduction approach. *J. Comp. Phys.* , accepted, 2016. doi: 10.1016/j.jcp.2016.06.021.

[11] K. Smetana, and M. Ohlberger. Hierarchical model reduction of nonlinear partial differential equations based on the empirical projection method and reduced basis techniques. *M2AN Math. Model. Numer. Anal.*, accepted, 2016. doi: 10.1051/m2an/2016031.

[12] M. Ohlberger, F. Schindler. Error control for the localized reduced basis multi-scale method with adaptive on-line enrichment. *SIAM J. Sci. Comput.* 37(6):A2865–A2895, 2015. doi: 10.1137/151003660.

[13] C. Himpe, and M. Ohlberger. Data-Driven Combined State and Parameter Reduction for Inverse Problems. *Adv. Comp. Math*, 41(5):1343–1364, 2015. doi: 10.1007/s10444-015-9420-5.

[14] B. Henning, and M. Ohlberger. Error control and adaptivity for heterogeneous multiscale approximations of nonlinear monotone problems. *Discrete Contin. Dyn. Syst. Ser. S* 8(1):119–150, 2015. doi: 10.3934/dcdss.2015.8.119.

[15] P. Henning, M. Ohlberger, and B. Schweizer. Adaptive Heterogeneous Multiscale Methods for immiscible two-phase flow in porous media. *Computational Geosciences*,19(1):99–114, 2015. doi: 10.1007/s10596-014-9455-6.

[16] S. Kaulmann, B. Flemisch, B. Haasdonk, K.-A. Lie, and M. Ohlberger. The Localized Reduced Basis Multiscale Method for Two-phase Flows in Porous Media. *International Journal for Numerical Methods in Engineering*, 102(5):1018–1040, 2015. doi: 10.1002/nme.4773.

[17] C. Himpe, and M. Ohlberger. Cross-Gramian Based Combined State and Parameter Reduction for Large-Scale Control Systems. *Mathematical Problems in Engineering*, 2014:1–13, 2014. doi: 10.1155/2014/843869.

[18] P. Henning, M. Ohlberger, and B. Schweizer. An adaptive Multiscale Finite Element Method. *Multiscale Mod. Simul.*, 12(3):1078–1107, 2014.

[19] K. Mikula, M. Ohlberger, and J. Urban. Inflow-implicit/outflow-explicit finite volume methods for solving advection equations. *Applied Numerical Mathematics* 85:16–37, 2014.

[20] M. Ohlberger, and K. Smetana. A dimensional reduction approach based on the application of reduced basis methods in the framework of hierarchical model reduction, *SIAM J. Sci. Comput.*, 36(2):A714–A736, 2014.

[21] H. Berninger, M. Ohlberger, O. Sander, and K. Smetana. Unsaturated subsurface flow with surface water and nonlinear in- and outflow conditions. *Math. Models Methods Appl. Sci.*, 24(5): 901-936, 2014.

[22] M. Ohlberger, and S. Rave. The method of freezing as a new tool for nonlinear reduced basis approximation of parameterized evolution equations. Mario Ohlberger, Stephan Rave *C. R. Math. Acad. Sci. Paris*, 351: 901-906, 2013.

[23] C. Himpe, and M. Ohlberger. A Unified Software Framework for Empirical Gramians. *Journal of Mathematics*, 2013, Article ID 365909, 6 pages, 2013. doi:10.1155/2013/365909.

[24] P. Henning, M. Ohlberger, and B. Schweizer. Homogenization of the degenerate two-phase flow equations. *Math. Models Methods Appl. Sci.*, 23(12): 2323-2352, 2013.

[25] M. Drohmann, B. Haasdonk, and M. Ohlberger. Reduced basis approximation for nonlinear parametrized evolution equations based on empirical operator interpolation. *SIAM J. Sci. Comput.*, 34:A937-A969, 2012.

[26] 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.

[27] 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.

[28] 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.

[29] B. Haasdonk, and M. Ohlberger. Efficient reduced models and a-posteriori error estimation for parametrized dynamical systems by offline/online decomposition. *Math. Comput. Model. Dyn. Syst.*, 17(2):145–161, 2011.

[30] 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.

[31] 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.

[32] 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.

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

[34] 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.

[35] 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.

[36] 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.

[37] 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.

[38] 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.

[39] 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.

[40] 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.

[41] 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.

[42] 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.

[43] 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.

[44] 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.

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

[46] 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.

[47] 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.

[48] 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.

[49] 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.

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

[51] 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.

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

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

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

[55] 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

[56] P. Bastian, C. Engwer, J. Fahlke, M. Geveler, D. Göddeke, O. Iliev, O. Ippisch, R. Milk, J. Mohring, S. Müthing, M. Ohlberger, D. Ribbrock, S. Turek. Advances concerning multiscale methods and uncertainty quantification in EXA-DUNE. To appear in: Proceedings of the SPPEXA Symposium, Munich, Germany, Springer LNCSE- 2016.

[57] P. Bastian, C. Engwer, J. Fahlke, M. Geveler, D. Göddeke, O. Iliev, O. Ippisch, R. Milk, J. Mohring, S. Müthing, M. Ohlberger, D. Ribbrock, S. Turek. Hardware-based Efficiency Advances in the EXA-DUNE Project. To appear in: Proceedings of the SPPEXA Symposium, Munich, Germany, Springer LNCSE- 2016.

[58] M. Ohlberger, S. Rave, F. Schindler. Model Reduction for Multiscale Lithium-Ion Battery Simulation. To appear in: ENUMATH 2015, Ankara, Turkey, Springer LNCSE, 2016.

[59] J. Brunken, K. Smetana, and M. Ohlberger. Problem adapted Hierarchical Model Reduction for the Fokker-Planck equation. Proceedings of Algoritmy 2016, Conference on Scientific Computing, Vysoke Tatry, Podbanske, March 13-18, 2016.

[60] M. Ohlberger, S. Rave. Reduced Basis Methods: Success, Limitations and Future Challenges. Proceedings of Algoritmy 2016, Conference on Scientific Computing, Vysoke Tatry, Podbanske, March 13-18, 2016.

[61] U. Baur, P. Benner, B. Haasdonk, C. Himpe, I. Martini, M. Ohlberger Comparison of methods for parametric model order reduction of instationary problems. Technical Report, Max Planck Institute Magdeburg, Preprint at http://www2.mpi-magdeburg.mpg.de/preprints/2015/MPIMD15-01.pdf - february 2015. To appear in P. Benner, A. Cohen, M. Ohlberger, and K. Willcox (eds.). Model Reduction and Approximation: Theory and Algorithms. SIAM, Philadelphia, PA, 2016.

[62] J. Mohring, R. Milk, A. Ngo, O. Klein, O. Iliev, M. Ohlberger, P. Bastian Uncertainty Quantification for Porous Media Flow Using Multilevel Monte Carlo. In: Large-Scale Scientific Computing. 10th International Conference, LSSC 2015, Sozopol, Bulgaria, June 8-12, 2015. Volume 9374 , pages 145–152, 2015, doi: 10.1007/978-3-319-26520-9_15.

[63] A. Buhr, and M. Ohlberger. Interactive Simulations Using Localized Reduced Basis Methods. Proceedings of MATHMOD 2015 - 8th Vienna International Conference on Mathematical Modelling, IFAC Mathematical Modelling, 48(1), pages 729–730, 2015, doi: 10.1016/j.ifacol.2015.05.134.

[64] C. Himpe, and M. Ohlberger. The Empirical Cross Gramian for Parametrized Nonlinear Systems. Proceedings of MATHMOD 2015 - 8th Vienna International Conference on Mathematical Modelling, IFAC Mathematical Modelling, 48(1), pages 727–728, 2015, doi: 10.1016/j.ifacol.2015.05.163.

[65] M. Ohlberger, K. Smetana. A Dimensional Reduction Approach Based on the Application of Reduced Basis Methods in the Framework of Hierarchical Model Reduction. Oberwolfach Reports pages 55–58 vol. 2 - 2015, doi: 10.4171/OWR/2015/2.

[66] C. Himpe, and M. Ohlberger. Combined State and Parameter Reduction. Proceedings in Applied Mathematics and Mechanics, Wiley pages 825-826 vol. 14 Gesellschaft für Angewandte Mathematik und Mechanik (GAMM), 2014. doi: 10.1002/pamm.201410393.

[67] A. Buhr, C. Engwer, M. Ohlberger, S. Rave. A NUMERICALLY STABLE A POSTERIORI ERROR ESTIMATOR FOR REDUCED BASIS APPROXIMATIONS OF ELLIPTIC EQUATIONS . Proceedings of the 11th World Congress on Computational Mathematics CIMNE, Barcelona pages 4094–4102 E. Onate, X. Oliver and A. Huerta - 2014.

[68] P. Bastian, C. Engwer, D. Göddeke, O. Iliev, O. Ippisch, M. Ohlberger, S. Turek, J. Fahlke, S. Kaulmann, S. Müthing, D. Ribbrock. EXA-DUNE: Flexible PDE Solvers, Numerical Methods and Applications. Euro-Par 2014: Parallel Processing Workshops. Euro-Par 2014 International Workshops, Porto, Portugal, August 25-26, 2014, Revised Selected Papers, Part II. Springer Lecture Notes in Computer Science pages 530–541 vol. 8806 Lopes et al., 2014. doi: 10.1007/978-3-319-14313-2_45.

[69] M. Ohlberger, S. Rave, S. Schmidt, S. Zhang. A Model Reduction Framework for Efficient Simulation of Li-Ion Batteries. In: Finite Volumes for Complex Applications VII-Elliptic, Parabolic and Hyperbolic Problems Springer Springer Proceedings in Mathematics & Statistics pages 695–702 vol. 78 Fuhrmann, J. and Ohlberger, M. and Rohde, C.,2014. doi: 10.1007/978-3-319-05591-6_69.

[70] S. Girke, R. Klöfkorn, M. Ohlberger. Efficient Parallel Simulation of Atherosclerotic Plaque Formation Using Higher Order Discontinuous Galerkin Schemes. In: Finite Volumes for Complex Applications VII-Elliptic, Parabolic and Hyperbolic Problems Springer International Publishing Springer Proceedings in Mathematics & Statistics pages 617–625 vol. 78 Fuhrmann, J. and Ohlberger, M. and Rohde, C., 2014. doi: 10.1007/978-3-319-05591-6_61.

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[72] C. Himpe, and M. Ohlberger. Model reduction for complex hyperbolic networks. Control Conference (ECC), 2014 European IEEE pages 2739–2743, 2014. doi: 10.1109/ECC.2014.6862188.

[73] M. Ohlberger, F. Albrecht, M. Drohmann, P. Henning, S. Kaulmann, B. Schweizer. The localized reduced basis multi-scale method with online enrichment. Oberwolfach Reports pages 12–15 vol. 7 - 2013, doi: 10.4171/OWR/2013/07.

[74] F. Albrecht, M. Ohlberger. Model reduction for multiscale problems. Oberwolfach Reports pages 2228–2230 vol. 39 - 2013, doi: 10.4171/OWR/2013/39.

[75] M. Ohlberger, and M. Schaefer. Error Control Based Model Reduction for Parameter Optimization of Elliptic Homogenization Problems . Proceedings of the 1st IFAC Workshop on Control of Systems Governed by Partial Differential Equations, pp. 251–256, 2013.

[76] M. Ohlberger. Error control based model reduction for multiscale problems. In: Proceedings of Algoritmy 2012, Conference on Scientific Computing, Vysoke Tatry, Podbanske, September 9-14, 2012.

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[78] M. Ohlberger, and M. Schaefer. A reduced basis method for parameter optimization of multiscale problems. In: Proceedings of Algoritmy 2012, Conference on Scientific Computing, Vysoke Tatry, Podbanske, September 9-14, 2012.

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

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

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[82] 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.

[83] 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.

[84] 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.

[85] 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.

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

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

[92] 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.

[93] 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.

[94] 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.

[95] 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.*

[96] 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.*

[97] 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.

[98] 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.

[99] 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.

[100] 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.

[101] 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.

[102] 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.

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[104] 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.

[105] 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.

[106] 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.

[107] 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.

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D) Edited Books and Miscellaneous

[110] C. Himpe, and M. Ohlberger. The Versatile Cross Gramian. ScienceOpen Posters vol. Morepas 3 scienceopen, 2015. doi: 10.14293/P2199-8442.1.SOP-MATH.PSAHPZ.v1

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[113] J. Fuhrmann, M. Ohlberger, C. Rohde. Finite Volumes for Complex Applications VII-Methods and Theoretical Aspects - FVCA 7, Berlin, June 2014. Springer International Publishing Springer Proceedings in Mathematics & Statistics vol. 77 - may 2014. doi: 10.1007/978-3-319-05684-5.

[114] B. Haasdonk, and M. Ohlberger. Wenn die Probleme zahlreicher werden: Reduzierte Basis Methoden für effiziente und gesicherte numerische Simulation. GAMM Rundbrief, 2014, 1, 6-13.

[115] 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.

[116] 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.

[117] 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.

[118] 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.

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[120] 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 (last ten years - not complete)

Spring 2016	Course and exercises *Numerics for PDEs II*; BA & MA-Seminar *Efficient numerical methods with application in biology and medicine*; Practical courses *Nonlinear modeling in the sciences* and *Scientific Computing*
Spring 2015	Course and exercises *Numerical Analysis* ; BA-Seminar *Biomedical modeling and model reduction*; Practical course *Nonlinear modeling in the sciences*
Fall 2014	Course and exercises *Numerical Linear Algebra*; MA-Seminar *Applied Mathematics*; Practical courses *Nonlinear modeling in the sciences* and *Scientific Computing*
Fall 2013	Course and exercises *Numerics for PDEs I*; BA-Seminar *Biomedical modelling and model reduction*; Practical courses *Nonlinear modeling in the sciences* and *Scientific Computing*
Spring 2013	Course and exercises *Numerics for PDEs II* ; BA-Seminar *Biomedical modelling and model reduction*; Practical course *Nonlinear modeling in the sciences*
Fall 2012	Course and exercises *Numerics for PDEs I*; BA-Seminar *Applied Mathematics*; Practical courses *Nonlinear modeling in the sciences* and *Scientific Computing*
Spring 2012	Course and exercises *Numerical Analysis* ; BA-Seminar *Applied Mathematics*; Practical course *Nonlinear modeling in the sciences*
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*
Spring 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 Modeling*
Fall 2008	Course, exercise and programming course *Numerics for PDEs I*; Seminar *Modeling 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*

Theses directed

Habilitation theses

Dez. 2015	P. Henning: *Application of numerical homogenization in geosciences and physics.*

Ph.D. theses

ongoing	T. Leibner: *Numerical modeling in biomechanics of cells and tissue.*
ongoing	J. Brunken: *Model reduction for kinetic transport equations.*
ongoing	B. Verfürth: *Numerical multi-scale methods for Maxwell equations*
ongoing	A. Buhr: *Model reduction for Maxwell equations.*
ongoing	R. Milk: *Prallelization of numerical multiscale methods.*
ongoing	S. Girke: *Modellierung der Plaquebildung in der Aorta Carotis.*
ongoing	M. Schaefer: *Mehrskalige Parameteroptimierung für Lithium-Ionen Akkus.*
Jun. 2016	C. Himpe: *Combined state and parameter reduction for nonlinear systems with an application in neuroscience.*
Oct. 2015	F. Schindler: *Model reduction for parametric multi-scale problems.*
Dec. 2014	S. Kaulmann: *Efficient schemes for parameterized multiscale problems.*
Jun. 2013	K. Smetana: *A dimensional reduction approach based on the application of reduced basis methods in the context of hierarchical model reduction.*
Jun. 2012	M. Drohmann: *Reduced basis model reduction for non-linear evolution equations.*
Jun. 2011	P. Henning: *Heterogeneous multiscale finite element methods for advection-diffusion and nonlinear elliptic multiscale problems.*
Dec. 2009	R. Klöfkorn: *Numerics for Evolution Equations - A General Interface Based Design Concept*, Universität Freiburg.

Diploma and Master theses

ongoing 2016	F. Hallmann: *Problemangepaßte hierarchische Modellreduktion für Elastizitätsprobleme.*
ongoing 2016	L. Camphausen: *Modellreduktion für inkompressible Strömungen in parametrisierten Gebieten.*
ongoing 2016	S. Camphausen: *Modellreduktion für elliptische Differentialgleichungen in nicht-linear parametrisierten Gebieten.*
Mar. 2016	M. Laier: *Reduzierte Basis Methoden für transportdominante Probleme.*
Jan. 2016	J. Stamm: *Modellierung und Simulation primärer Zink-Luft-Knopfzellen.*
Sep. 2015	T. Leibner: *Numerical methods for kinetic equations.*
Aug. 2015	J. Brunken: *Model reduction for kinetic equations.*
Feb. 2015	B. Verfürth: *Numerical Analysis of Multiscale Methods for Maxwell Equations.*
Apr. 2014	K. Weber: *Model Reduction for Tumor Invasion.*
Jun. 2013	F. Meyer: *Convergent adaptive Finite Element Method for the solution of the EEG forward problem with the help of the subtraction method.*
May 2012	R. Milk: *Implementierung und Validierung eines Local Discontinuous Galerkin Verfahrens zur Approximation der instationären Navier-Stokes Gleichungen.*
Mar. 2012	S. Girke: *Vereinheitlichter Rahmen zur Implementierung hybridisierter Diskretisierungsverfahren.*
Apr. 2011	C. Blum: *Fourier Spektral Methoden zur Modellierung der Konvektion von Fluiden über porösen Schichten.*

Diploma and Master theses (cont.)

Feb. 2011	S. Westerheide: *Bildbasierte Lösung von Partiellen Differentialgleichungen mit Composite Finite Elements.*
Mar. 2011	S. Kaulmann: *A localized reduced basis approach for heterogeneous multiscale problems.*
Feb. 2011	C. Himpe: *Implemantaion and analysis of Dynamic Causal Modelling.*
Dec. 2010	C. Grumann: *.Implementierung und Analyse von Gebietszerlegungsmethoden für Stokes-Darcy Strömungen.*
Sep. 2010	M. Schaefer: *.Parameteroptimierung für elliptische Differentialgleichungen mit Hilfe der Reduzierten Basis Methode.*
Oct. 2009	F. Albrecht: *Local Discontinuous Galerkin Verfahren für die Stokes Gleichungen und Homogenisierung in porösen Medien.*
Dec. 2008	M. Drohmann: *Reduzierte Basis Methode für die Richards Gleichung.*
Aug. 2008	K. Smetana: *Untersuchung von Randbedingungen für die Richardsgleichung.*
Aug. 2007	P. Henning: *A posteriori Fehlerabschätzungen für HMM-FEM.*
Aug. 2006	K. Steinkamp: *Membranmodellierung von Brennstoffzellen.*
May 2006	C. Wolf: *Lokal adaptive Mehrskalenalgorithmen für Einphasenströmungen in porösen Medien.*
Jan. 2004	V. Zipfel: *Numerische Berechnung von Permeabilitätsmatrizen für die Darcy Gleichung.*
June 2003	K. Kühn: *Dynamisches Zweiphasen-Modell einer Protonenaustauschmembran-Brennstoffzelle.*
Oct. 2002	R. Klöfkorn: *Simulation von Abbau- und Transportprozessen gelöster Schadstoffe im Grundwasser.*
May 1999	D. Bürkle: *Kombinierte Finite Volumen - Finite Elemente Verfahren zur Diskretisierung von dichtegetriebenen Grundwasserstr"omungen.*

Bachelor theses

Sept. 2015	T. Keil: *Modelling of multi-scale diffusion processes and homogenization.*
Aug. 2015	T. Wedemeier: *Mathematische Modellierung in der Zellbiologie: Mikrotubulis und ihre Auswirkungen auf die Signale der planaren Zellpolarität.*
Feb. 2015	I. Vortkamp: *Modellierung und Simulation der Invasion von Wolbachia.*
Nov. 2014	A. Chaluppka: *Untersuchung des Konvergenzverhaltens der Natürlichen Steitigen Erweiterung von Runge-Kutta Verfahren.*
Aug. 2014	Y. Haager: *Dynamische kausale Modellierung: Implementierung und Validierung des EM-Algorithmus.*
Okt. 2013	S. Camphausen: *Reduzierte Basis Approximation von elliptischen Differentialgleichungen mit affiner Gebietstransformation.*
Okt. 2013	M. Laier: *Nichtlineare Modellreduktion mit dem PODEI-GREEDY Algorithmus zur Approximation der viskosen Burgersgleichung.*
Okt. 2013	F. Hallmann: *Hierarchische Modellreduktion fuür elliptische Probleme.*
Okt. 2013	L. Camphasuen: *Problemangepasste Basiskonstruktion zur hierarchischen Modellreduktion elliptischer Probleme.*
Sept. 2013	M. Venhuis: *Viskositätslimes und Entropiebedingung für skalare Erhaltungsgleichungen.*
Sept. 2013	K. Wilkinghoff: *Homogenisierung nichtlinearer elliptischer Differentialgleichungen.*
Sept. 2013	L. Bücker: *Bayessche Invertierung zur Konnektivitätsanalyse in den Neurowissenschaften: Numerische Approximation, Anwendung und Konvergenztheorie.*

Bachelor theses (cont.)

Sept. 2013	S. Seepe : *Konvergenz und Fehlerabschätzung für die Variational Multiscale Methode.*
Sept. 2013	D. Tinius: *Makroskopische Grenzwerte kinetischer Gleichungen mit Anwendungen in der Tumormodellierung.*
Sept. 2013	A. Bleier: *Eindeutigkeit und Stabilität eines Grenzzyklus fuür dynamische Systeme in der Neuronenmodellierung.*
Sept. 2013	J. Brunken: *Modellreduktion für parametrisierte dynamische Systeme mit quadratischen Nichtlinearitäten.*
Mai 2013	B. Verfürth: *Homogenisierung für nichtlineare Hindernisprobleme.*
Sept. 2012	A. Pein: *Globale und lokale hierarchische Modellreduktion am Beispiel des Poisson-Problems.*
Sept. 2012	G. Kaib: *Modellierung und Analysis der Plaquebildung in Blutgefäßen.*
Sept. 2011	K. Weber: *Modellierung von Lithium-Ionen-Akkumulatoren.*
Aug. 2011	L. Z. Edeler: *Modellierung und Simulation von Strömungen in flachen Gewässern.*
Mai 2011	L. Thüß: *Geometrische Mehrskalenmodellierung: Existenz von Lösungen für ein gekoppeltes 2D-0D Problem.*
Aug. 2010	D. J. Dieterle: *Modellierung von Batterien mit porösen Elektroden.*

Ongoing and past research projects/grants

2015 – 2018	DFG SPP 1648: EXA-DUNE - Flexible PDE Solvers, Numerical Methods, and Applications (2nd phase).
2015 – 2017	Cluster of Excellence EXC 1003 Cells in Motion *FF-2015-07 - Mechanobiology, Mathematical Modeling and Simulation of Forces During Tissue Morphogenesis.*
2014 – 2018	DFG project: *Wave propagation in periodic structures and mechanisms of negative refraction.*
2013 – 2018	Cluster of Excellence EXC 1003 Cells in Motion *A6 - Motion Analysis in Cellular Systems.*
2013 – 2017	DFG CRC656, *B07: Mathematical Modelling of Atherosclerotic Plaque Formation Based on Data from Multiparametric Imaging.*
2013 – 2017	CST Computer Simulation Technology AG: *Derivation, analysis and validation of model reduction methods for the approximation of parameterized Maxwell equations.*
2013 – 2016	BMBF project 05M13PMA: *MULTIBAT: Multiskalenmodelle und Modellreduktionsverfahren zur Vorhersage der Lebensdauer von Lithium-Ionen-Batterien.*
2012 – 2015	DFG SPP 1648: *EXA-DUNE - Flexible PDE Solvers, Numerical Methods, and Applications.*
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 in my group

2012 to present	*DUNE-GDT*: A general discretization toolbox.
2012 to present	*pyMOR*: Model Order Reduction with Python.
2012 to present	*emgr*: An EMpirical GRamian framework for model reduction.
2012 to present	*optmor*: Optimization based combined model reduction.
2010 to present	*DUNE-STOKES, DUNE-OSSEEN* and *DUNE-NAVIER-STOKES*: Libraries for the implementation of incompressible flow solvers.
2010 to present	*DUNE-HYBRIDFEM*: Library with a unified framework to implement hybridized discretization schemes.
2009 to present	*DUNE-FEM-LOCALFUNCTIONS*: Library for modular implementation of discrete function spaces.
2007 to present	*DUNE-MULTISCALE*: A library for the implementation of a large class of numerical multiscale methods.
2003 to present	*DUNE*, *DUNE-FEM*: general object oriented packages for scientific computing (see www.dune-project.org).
2005 to 2012	*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 2008	*fc-2p* for the simulation of fuel cells.
1995 to 2007	GRAphics Programming Environment *GRAPE*.

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, Journal of Mathematics, GEM International Journal on Geomathematics.

International advisory boards
LABEX IRMIA, Strasbourg, France, since 2012. Mathematical Modeling and Numerical Simulation for Nuclear Waste Management Problems (MoMaS), France, 2008-2011.

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, and others.

Referee for science foundations
DFG (Germany), Schweizerischer Nationalfond (Switzerland), 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, Workshops, and Talks

2016

1. Algoritmy 2016. **Invited session** on Model reduction for parameterized systems and talk on Error Control and Online Enrichment for the Localized Reduced Basis Multiscale Method. (Podbanske, Slovakia, 13.-18.3.2016)

2. Workshop on Surface PDEs 2016. Participant without talk. (Münster, 22.-24.2.2016)

3. Mathematics Department, Univ. Augsburg. **Invited talk,** Error Control and Problem Adapted Solution Spaces: Key Ingredients towards Optimal Numerical Methods. (Augsburg, 23.2.2016)

4. SPPEXA Symposium 2016. Co-author of two presentations of the EXA-DUNE project. (Munich, 25.-27.1.2016)

2015

5. MoRePaS 2015. **Co-Organizer and co-author of several talks and a poster.** (Trieste, 13.-16.10.2015)

6. Molecular Imaging School – MIS 2015. **Poster:** Efficient Numerical Modeling of Atherosclerotic Plaque Formation. (Vienna, 30.9.-3.10.2015)

7. ENUMATH 2015. **Invited plenary talk,** Localized model reduction for multiscale problems. (Ankara, 14.-18.9.2015)

8. Oberwolfach workshop on New Discretization Methods for the Numerical Approximation of PDEs. **Invited talk,** A Dimensional Reduction Approach Based on the Application of Reduced Basis Methods in the Framework of Hierarchical Model Reduction. (Oberwolfach, 11.-17.1.2015)

2014

9. SPPEXA-Workshop on "Numerical Methods for High-Performance Computers. (Heidelberg, 1.-3.12.2014)

10. Oberwolfach Seminar:Projection Based Model Reduction: Reduced Basis Methods, Proper Orthogonal Decomposition, and Low Rank Tensor Approximations. **Organizer & Seminar talks,** Generalized Reduced Basis approach with application to localized model reduction for multi scale problems and advanced topics. (MFO, Oberwolfach, 23.-29.11.2014)

11. The International Symposium on Finite Volumes for Complex Applications VII. **Organizer & Poster,** A-Posteriori Error Estimates for the Localized Reduced Basis Multi-Scale Method. (WIAS, Berlin, 15.-20.6.2014.)

12. ICMS workshop: Multiscale Methods & High Performance Computing. **Invited talk,** Model reduction for multiscale problems. (ICMS, Edinburgh, 7.-9.5.2014.)

13. SPPEXA Annual Plenary Meeting. (Dresden, 1.-2.4.2014)

14. CMTC minisymposium 2014. **Invited talk,** Multiscale methods and model reduction for electrochemical applications. (Center for Multiscale Theory and Computation, Münster, 20.3.2014)

15. Workshop on Model Order Reduction and Data. **Invited talk,** Data driven combined parameter and state reduction in Bayesian inversion. (Laboratoire Jacques-Louis Lions, Paris, 6.-8.1.2014)

2013

16. New Algorithms for Exascale Computing. **Organizer,** (Cologne, 4.-6.12.2013)

17. Münster-Twente Workshop 2013. **Invited talk (with C. Engwer),** Numerical multi-scale modelling in physical and bio-medical applications. (Münster, 6.11.2013)

18. CPDE 2013. **Invited minisymposium talk,** Error Control Based Model Reduction for Parameter Optimization of Elliptic Homogenization Problems (I) (Paris, 25.-27.9.2013)

19. ENUMATH 2013. **Invited minisymposium talk,** Model reduction for nonlinear parametrized evolution problems. (Lausanne, 26.-30.8.2013)

20. Oberwolfach workshop on Multiscale and High-Dimensional Problems. **Invited talk,** Model reduction for multiscale problems. (Oberwolfach, 26.7.-3.8.2013)

21. ModRedCIRM 2013, Model Reduction and Approximation for Complex Systems 2013. **Organizer** (CIRM Luminy, 10.-14.6.2013)

22. Interpore2013, 5th International Conference on Porous Media & Annual Meeting. **Invited talk**, Error control based model reduction for flow in heterogeneous porous media. (Prague, 21.-24.5.2013)

23. GAMM Jahrestagung. **Invited minisymposium** on *Model reduction for PDEs*, **Talk**, Reduced Basis Multiscale Methods for Flow in Porous Media. (Novi Sad, 18-22.3.2013)

24. AICES Seminar, RWTH Aachen, 21.1.2013. **Talk:** *Error Control Based Model Reduction for Multi-Scale Problems*

2012

25. Kolloquium of the Mathematics Department, Univ. Erlangen,13.11.2012. **Talk:** *Model reduction for multiscale problems*

26. MoRePaS II, Second International Workshop on Model Reduction for Parametrized Systems. **Organizer**, (Günzburg, 2.-5.10.2012)

27. ALGORITMY 2012,Conference on Scientific Computing. **Invited session** on *Model reduction for multiscale problems*, **Talk**, Error control based model reduction for multiscale problems. (Podbanske, 9.-14.9.2012)

28. International Workshop PDE Software Frameworks - 10th Anniversary of DUNE. **Organizer,** (WWU Münster, 18.-20.6.12)

29. Spring School on Mathematics of Multiscale Problems. **Invited talk,** A posteriori error control and adaptivity for numerical multiscale methods. (Felix Klein Zentrum für Mathematik and Fraunhofer ITWM, Kaiserslautern, 26.-27.4.12)

30. Mathematics Department, Bonn, 27.4.2012. **Talk:** *Model reduction for multiscale problems*

2011

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

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

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

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

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

36. 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)

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

38. 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)

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

40. 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

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

42. 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)

43. 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)

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

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

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

2009

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

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

49. 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)

50. 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)

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

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

2008

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

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

55. 4th Workshop on Numerical Methods for Evolution Equations. **Invited talk:** Reduced basis methods for evolution equations. (Heraklion, Crete, 26.-27.9.08)

56. 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)

57. 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)

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

2007

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

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

2006

61. Institut für Mathematik, HU Berlin, 18.11.2006. **Talk:** *Fehlerkontrolle und Adaptivität für konvektions-dominante Probleme: Modellierung, Analysis, Simulation und Anwendungen*

62. Institut für Mathematik, TU Berlin, 14.10.2006. **Talk:** *Fehlerkontrolle und Adaptivität für konvektions-dominante Probleme: Modellierung, Analysis, Simulation und Anwendungen*

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

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

65. 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)

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

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

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

2005

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

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

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

72. 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)

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

74. 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)

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

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

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

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

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

2004

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

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

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

83. 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)

84. 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

85. 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*

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

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

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

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

90. 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)

91. 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)

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

93. 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

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

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

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

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

98. 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)

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

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

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

102. 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)

103. 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)

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

105. 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)

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

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

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

2001

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

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

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

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

2001

113. 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)

114. 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)

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

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

117. 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

118. 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)

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

120. 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)

121. 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)

122. 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)

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

124. 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

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

126. 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)

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

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

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

1998

130. 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)

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

132. 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)

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

1997

134. 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)

135. 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)

136. 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)

137. 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

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

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

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

(Co-)Organizer of the following events

1. Third International Workshop on *Model Reduction for Parametrized Systems* (Trieste, 13.-16.10.15)

2. Invited Session *Model reduction for parameterized Systems*, ALGORITMY 2015. (Podbanske, 13.-18.9.15)

3. Oberwolfach Seminar: Projection Based Model Reduction: Reduced Basis Methods, Proper Orthogonal Decomposition, and Low Rank Tensor Approximations. (MFO, Oberwolfach, 23.-29.11.2014)

4. FVCA7 - The International Symposium of Finite Volumes for Complex Applications VII. (Berlin, 15.-20.6.2014)

5. New Algorithms for Exascale Computing. (Cologne, 4.-6.12.2013)

6. Model Reduction and Approximation for Complex Systems 2013. (CIRM Luminy, 10.-14.6.2013)

7. Minisymposium on *Model reduction for PDEs*, GAMM Jahrestagung. (Novi Sad, 18-22.3.2013)

8. Second International Workshop on *Model Reduction for Parametrized Systems.* (Günzburg, 2.-5.10.12)

9. Invited Session *Model reduction for multiscale problems*, ALGORITMY 2012. (Podbanske, 9.-14.9.12)

10. International Workshop *PDE Software Frameworks – 10th Anniversary of DUNE.* (Münster, 18.-20.6.12)

11. Minisymposium *Numerical Methods in the Context of Model Reduction*, ENUMATH 2011. (Leicester, 5.-9.9.11)

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

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

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

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

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

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

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

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

20. Learnshop on SCIENTIFIC VISUALIZATION '98. (Bonn, 25.2.98-27.2.98)

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