Curriculum Vitae

Jan S. Hesthaven

University Address

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Education

07/1991	M.Sc. in Computational Physics, Institute of Mathematical Modeling, Technical University of Denmark, Copenhagen, DK. August 1991. Thesis: *Dynamics of Coherent Structures in the Hasegawa-Mima Equation.*
08/1995	Ph.D. in Applied Mathematics, Institute of Mathematical Modeling, Technical University of Denmark, Copenhagen, DK. August 1995. Thesis: *Numerical Studies of Unsteady Coherent Structures and Transport in Two-Dimensional Flows.*

Professional Appointments

08/1995-07/1998	NSF Postdoctoral Fellow, Division of Applied Mathematics, Brown University.
08/1995-06/1999	Visiting Assistant Professor,Brown University.
07/1999-12/2002	Assistant Professor of Applied Mathematics, Brown University.
07/2001-12/2002	Manning Assistant Professor, Brown University.
01/2003-06/2005	Associate Professor, Brown University.
07/2005-	Professor of Applied Mathematics, Brown University.

07/2006-	Associate Chair of Applied Mathematics, Brown University.
10/2006-	Director of Center for Computation and Visualization (CCV), Brown University.

Visiting and Consulting Appointments (> 1 month)

12/1996-12/2002	Consultant to ICASE, NASA Langley Research Center, VA.
08/2001	Visiting Professor, Department of Mathematical Modeling, Technical University of Denmark, Denmark.
09/1995-08/2001	Consultant to Risø National Laboratory, Denmark.
03/2004-04/2006	Consultant to TechX, Boulder, CO, USA.
07/2004	Visiting scientist, Project ONDES, INRIA-Roquencourt, France.
07/2005	Visiting scientist, Project ONDES, INRIA-Roquencourt, France.
08/2005-07/2006	Otto Mønsted Visiting Professor, Technical University of Denmark, Denmark
08/2007	Visiting Professor, Department of Mathematical Modeling, Technical University of Denmark, Denmark.
07/2006-	Consultant to HyperComp, Inc
01/2007-	Consultant to Mathematical Systems and Solutions, Inc.
10/2007-	Adjunct Professor, Technical University of Denmark, Lyngby, Denmark.

Invited Visits/Program Participation

07/2003	*Computational Challenges in PDE's*, Isaac Newton Institute for the Mathematical Sciences, Cambridge University, UK.
01/2005	*Multiscale Processes in Fusion Plasma*, IPAM, UCLA.
11/2007	*DG-FEM for PDE's*, Banff International Station for Mathematical Innivation and Discovery (BIRS), Canada.

Publications

Books

J. S. Hesthaven, S. Gottlieb, and D. Gottlieb, *Spectral Methods for Time-Dependent Problems*. Cambridge Monographs on Applied and Computational Mathematics **21**. Cambridge University Press, Cambridge, UK. X+274 pages. January 2007.

J. S. Hesthaven and T. Warburton, *Nodal Discontinuous Galerkin Methods: Algorithms, Analysis, and Applications*. Springer Texts in Applied Mathematics **54**, Springer Verlag, New York. XIV+500 pages. January 2008.

Editorial

J. S. Hesthaven, D. Gottlieb, and E. Turkel (Eds.), *Proceedings of the 4th International Conference on Spectral and High-Order Methods (ICOSAHOM'98)*. Applied Numerical Mathematics, **33**(1-4), Elsevier Publishing, Holland. May 2000.

M.H. Carpenter, D. Gottlieb, J. S. Hesthaven, and C.-W. Shu (Eds.), *Proceedings of AFOSR Workshop on Advances and Challenges in Time-Integration of PDE's*, J. Sci. Comput. **25**(1-2), Kluver Publishing, Holland. October 2005.

D. Gottlieb, J. S. Hesthaven, G. E. Karniadakis, and C.-W. Shu (Eds.), *Proceedings of the 6th International Conference on Spectral and High-Order Methods (ICOSAHOM'04)*, J. Sci. Comput. **27**(1-3), Kluver Publishing, Holland. June 2006.

G.E. Karniadakis and J.S. Hesthaven (Eds.), *Special Issue on "Spectral Interpolation in Non-Orthogonal Domains: Algorithms and Applications*, J. Engin. Math. **56**(3), March 2007.

H. Haddar and J.S. Hesthaven (Eds.), *Proceedings of the 7th International Conference on Mathematical and Numerical Aspects of Waves (WAVES'05)*, J. Comp. Appl. Math. **204**(2), July 2007.

Book Chapters

J. S. Hesthaven, 2003, *High-Order Accurate Methods in Time-Domain Computational Electromagnetics. A Review.* Advances in Imaging and Electron Physics **127**, pp. 59-123.

Journals

J. Du Croz, J. S. Hesthaven, and J. Waśniewski, 1992, *Comparison of Two FFT Libraries on the Amdahl/Fujitsu VP Computer - NAG and Siemens Libraries*, Supercomputer **51**, 4-10.

J. S. Hesthaven, J. Nycander, and J. P. Lynov, 1993, *Dynamics of Non-Stationary Dipole Vortices*, Phys. Fluids A **5**(3), 622-629.

J. S. Hesthaven, J. P. Lynov, J. Juul Rasmussen, and G. G. Sutyrin, 1993, *Generation of Tri-Polar Vortices on the Beta-Plane*, Phys. Fluids A **5**(7), 1674-1678.

G. G. Sutyrin, J. S. Hesthaven, J. P. Lynov, and J. Juul Rasmussen, 1994, *Dynamical Properties of Vortical Structures on the Beta-Plane*, J. Fluid Mech. **268**, 303-331.

J. Juul Rasmussen, J. P. Lynov, J. S. Hesthaven, and G. G. Sutyrin, 1994, *Vortex Dynamics in Plasmas and Fluids*, Plasma Phys. Control. Fusion **36**, B193-B202.

J. S. Hesthaven, A. H. Nielsen, H. L. Pécseli, and J. Juul Rasmussen, 1995, *The Eulerian-Lagrangian Transformation in Two-Dimensional Random Flows*, J. Atmos. Terres. Phys. **57**(3), 215-223.

J. S. Hesthaven, J. P. Lynov, A. H. Nielsen, J. Juul Rasmussen, M.R. Schmidt, E.G. Shapiro, and S.K. Turitsyn, 1995, *Dynamics of a Non-Linear Dipole Vortex*, Phys. Fluids A **7**(9), 2220-2229.

J. Juul Rasmussen, J. S. Hesthaven, J. P. Lynov, A. H. Nielsen, and M. R. Schmidt, 1996, *Dipolar Vortices in Two-Dimensional Flows*, Math. Comp. Simu., **40**, 207-221.

J. S. Hesthaven and D. Gottlieb, 1996, *A Stable Penalty Method for the Compressible Navier-Stokes Equations. I. Open Boundary Conditions*, SIAM J. Sci. Comp. **17**(3), 579-612.

J. S. Hesthaven, 1997, *A Stable Penalty Method for the Compressible Navier-Stokes Equations. II. One-Dimensional Domain Decomposition Schemes*, SIAM J. Sci. Comp. **18**(3), 658-685.

B. Yang, D. Gottlieb, and J. S. Hesthaven, 1997, *Spectral Simulation of Electromagnetic Wave Scattering*, J. Comput. Phys. **134**(2), 216-230.

J. S. Hesthaven, J. Juul Rasmussen, L. Bergé, and J. Wyller, 1997, *Numerical Studies of Localized Wave Fields Govenered by the Raman-Extended Derivative Nonlinear Schrödinger Equation*, J. Phys. A: Math. Gen. **30**, 8207-8224.

J. S. Hesthaven, 1998, *From Electrostatics to Almost Optimal Nodal Sets for Polynomial Interpolation in a Simplex*, SIAM J. Numer. Anal. **35**(2), 655-676.

J. S. Hesthaven, 1998, *Integration Preconditioning of Pseudospectral Operators. I. Basic Linear Operators*, SIAM J. Numer. Anal. **35**(2), 1571-1593.

J. S. Hesthaven, 1998, *On the Analysis and Construction of Perfectly Matched Layers for the Linearized Euler Equations*, J. Comput. Phys. **142**, 129-147.

J. S. Hesthaven and L. Jameson, 1998, *A Wavelet Optimized Adaptive Multi-Domain Method*, J. Comput. Phys. **145**, 280-296.

J. S. Hesthaven, 1999, *A Stable Penalty Method for the Compressible Navier-Stokes Equations. III. Multi Dimensional Domain Decomposition Schemes*, SIAM J. Sci. Comp. **20**(1), 62-93.

B. Yang and J. S. Hesthaven, 1999, *A Pseudospectral Method for Time-Domain Computation of Electromagnetic Scattering by Bodies of Revolution*, IEEE Trans. Antennas Propaga. **47**(1), 132-141.

P. G. Dinesen, J. S. Hesthaven, J. P. Lynov, and L. Lading, 1999, *Pseudospectral Method for the Analysis of Diffractive Optical Elements*, J. Opt. Soc. Am. A **16**(5), 1124-1130.

J. S. Hesthaven and D. Gottlieb, 1999, *Stable Spectral Methods for Conservation Laws on Triangles with Unstructured Grids*, Comput. Methods Appl. Mech. Engin. **175**, 361-381.

S. Abarbanel, D. Gottlieb, and J. S. Hesthaven, 1999, *Wellposed Perfectly Matched Layers for Advective Acoustics*, J. Comput. Phys **154**(2), 266-283.

J. S. Hesthaven, P. G. Dinesen, and J. P. Lynov, 1999, *Spectral Collocation Time-Domain Modeling of Diffractive Optical Elements*, J. Comput. Phys. **155**(1), 287-306.

P. G. Dinesen, J. S. Hesthaven, and J. P. Lynov, 2000, *A Pseudospectral Collocation Time-Domain Method for Diffractive Optics*, Appl. Numer. Math. **33**(1-4), 199-206.

B. Yang and J. S. Hesthaven, 2000, *Multidomain Pseudospectral Computation of Maxwell's Equations in 3-D General Curvilinear Coordinates*, Appl. Numer. Math. **33**(1-4), 281-289.

J. S. Hesthaven, 2000, *Spectral Penalty Methods*, Appl. Numer. Math. **33**(1-4), 23-41.

P. G. Dinesen and J. S. Hesthaven, 2000, *A Fast and Accurate Boundary Variation Method for Diffractive Gratings*, J. Opt. Soc. Am. A **17**(9), 1565-1572.

J. S. Hesthaven and C. H. Teng, 2000, *Stable Spectral Methods on Tetrahedral Elements*, SIAM J. Sci. Comput. **21**(6), 2352-2380.

V. Zharnitsky, E. Grenier, S. K. Turitsyn, C. K. R. T. Jones, and J. S. Hesthaven, 2000, *Ground States of Dispersion Managed NLS*, Phys. Rev. E. **62**(5), 7358-7364.

T. Warburton, L. Pavarino, and J. S. Hesthaven, 2000, *A Pseudospectral Scheme for Incompressible Navier-Stokes using Unstructured Nodal Elements*, J. Comput. Phys. **164**(1), 1-21.

D. Gottlieb and J. S. Hesthaven, 2001, *Spectral Methods for Hyperbolic Problems*, J. Comput. Appl. Math. **128**(1-2), 83-131.

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G. X. Fan, Q. H. Liu, and J. S. Hesthaven, 2002, *Multi-Domain Pseudospectral Time-Domain Simulations of Scattering by Objects Buried in Lossy Media*, IEEE Trans. Geosci. Remote Sens. **40**(6), 1366-1373.

J. S. Hesthaven and T. Warburton, 2002, *High-Order Nodal Methods on Unstructured Grids. I. Time-Domain Solution of Maxwell's Equations*, J. Comput. Phys. **181**(1), 186–221.

F. X. Giraldo, J. S. Hesthaven, and T. Warburton, 2002, *Nodal High-Order Discontinuous Galerkin Method for the Spherical Shallow Water Equations*, J. Comput. Phys. **181**(2), 499–525.

S. A. Nielsen, J. S. Hesthaven, 2002, *A Multi-Domain Chebyshev Collocation Method for Predicting Ultrasonic Field Parameters in Complex Material Geometries*, Ultrasonics **40**(1-8), pp. 177-180.

T. Warburton and J. S. Hesthaven, 2003, *On the Constants in hp-Finite Element Trace Inequalities*, Comput. Methods Appl. Mech. Engin. **192**, pp. 2765-2773.

L. Wilcox, P. G. Dinesen, and J. S. Hesthaven, 2004, *Fast and Accurate Boundary Variation Method for Multilayered Diffraction Optics*, J. Opt. Soc. Ame. A **21**(5), pp. 757-769.

J. S. Hesthaven and T. Warburton, 2004, *High-Order Accurate Methods for Time-domain Electromagnetics*, Comp. Mod. Engin. Sci. **5**(5), 395–408.

J.S. Hesthaven and T. Warburton, 2004, *High Order Nodal Discontinuous Galerkin Methodsfor the Maxwell Eigenvalue Problem*, Royal Soc. London Ser A **362**, 493–524.

J. S. Hesthaven and T. Warburton, 2004, *Discontinuous Galerkin Methods for the Time-Domain Maxwell's Equations: An Introduction*, ACES Newsletter **19**(1), pp. 10-29.

P.J. Diamessis, J.A. Domaradzki, and J.S. Hesthaven, 2005, *A Spectral Multidomain Penalty Method Model for the Simulation of High Reynolds Number Localized Incompressible Stratified Turbulence*, J. Comput. Phys **202**, pp. 298-322.

Q. Y. Chen, D. Gottlieb, and J. S. Hesthaven, 2005, *Uncertainty Analysis for Steady-State Inviscid Burgers Equation*. J. Comput. Phys. **204**, pp. 378-398.

R. Horvath, L.C. Wilcox, H.C. Pedersen, N. Skiversen, J.S. Hesthaven and P.M. Johansen, 2005, *Analytical Theory of Grating Couplers for Waveguide Sensing: A Perturbational Approach and its Limitations*, Appl. Phys. B: Lasers and Optics **81**, pp. 65-73.

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D. Xiu and J.S. Hesthaven, 2005, *High-Order Collocation Methods for Differential Equations with Random Inputs*, SIAM J. Sci. Comput. **27**, pp. 1118-1139.

J. Grooss and J.S. Hesthaven, 2006, *A Levelset Discontinuous Galerkin Method for Free Surface Flows*, Comput. Methods Appl. Mech Engrg. **195**, pp. 3406-3429.

G. Jacobs and J.S. Hesthaven, 2006, *High-Order Nodal Discontinuous Galerkin Particle-in-Cell Methods on Unstructured Grids*, J. Comput. Phys. **214**, pp. 96-121.

C. Chauviere, J.S. Hesthaven, and L. Lurati, 2006, *Computational Modeling of Uncertainty in Time-Domain Electromagnetics*, SIAM J. Sci. Comp. **28**(2), pp. 751-775.

M.S. Kilic, G.B. Jacobs, J.S. Hesthaven, and G. Haller, 2006, *Reduced Navier-Stokes Equations Near a Flow Boundary*, Physics D **217**, pp. 161-185.

J. S. Hesthaven, S.M. Kaber, and L. Lurati, 2006, *Pade-Legendre Interpolants for Gibbs Reconstruction*, J. Sci. Comput. **28**(2-3), pp. 337-359.

S. Abarbanel, D. Gottlieb, and J. S. Hesthaven, 2006, *Nonlinear PML for Electromagnetics*, J. Sci. Comput **28**(2-3),pp. 125-137.

A. Kanevsky, M. Carpenter, and J. S. Hesthaven, 2006, *Idempotent Filtering in Spectral and Spectral Element Methods*, J. Comp. Phys. **220**(1), pp. 41-58.

A. Engsig-Karup, J. S. Hesthaven, H. Bingham, and P. Madsen, 2006. *Nodal DG-FEM Solution of High Order Boussinesq-Type Equations*, J. Engin. Math. **56**(3), pp. 351-370.

H. Salman, J.S. Hesthaven, T. Warburton, and G. Haller, 2007, *Predicting Transport by Lagrangian Coherent Structures with a High Order Method*, J. Theo. Comput. Fluid Dyn. **21**(1), pp. 39-58.

S. Chun and J.S. Hesthaven, 2007, *Modeling of the Frozen Mode Phenomenon and its Sensitivity using Discontinuous Galerkin Methods*, Commu. Comput. Phys. **2**, pp. 611-639.

A. Kanevsky, M. Carpenter, D. Gottlieb,and J.S. Hesthaven, 2007, *Application of implicit-explicit high-order Runge-Kutta Methods to Discontinuous Galerkin Schemes*, J. Comput. Phys. **225**(2), pp. 1753-1781.

C. Chauviere, J.S. Hesthaven, and L. Wilcox, 2007, *Efficient Computation of RCS from Scatterers of Uncertain Shapes*, IEEE Trans. Antennas Propagat. **55**(5), pp. 1437-1448.

L. N. Olson, J. S. Hesthaven, and L.C. Wilcox, 2007, *Developments in Overlapping High-Order Nodal Discontinuous Galerkin Methods*, Lect. Notes Comput. Sci. Eng. **55**, pp. 325-332.

J. S. Hesthaven and R. M. Kirby, 2007, *Filtering in Legendre Spectral Methods*, Math. Comp - to appear.

S. Chun and J.S. Hesthaven, 2007, |em PDE Constrained Optimization and Design of Frozen Mode Crystals, Comm. Comput. Phys. – to appear.

A.P. Engsig-Karup, J.S. Hesthaven, H.B. Bingham, and T Warburton, 2007, *DG-FEM Solution for Nonlinear Wave-Structure Interaction using Boussinesq-type Equations*, Costal Engineer. – to appear.

E. Brodal, J.S. Hesthaven and F. Melandsø, 2008, *Numerical Modeling of Double-Layered Piezeelectric Transducer Systems using a High-Order Discontinuous Galerkin Method*, Comp. Struct. – to appear.

Popular Level

P. G. Dinesen, J. S. Hesthaven, and J. P. Lynov, 2000, *Optik på supercomputere – når linseligningen ikke slår til* (in Danish), Danish Optical Society News (DOPS Nyt) **15**(1), 6-11.

Conferences

C. W. Gowers, J. G. Cordey, A. Edwards, J. S. Hesthaven, E. Lazzaro, F. Nave, P. Nielsen, and H. Salzmann, 1989, *Measurements of Local Features in T_e and n_e Profiles Observed on JET*. 31st APS, Anaheim. JET-P 80(89).

J. S. Hesthaven, J. P. Lynov, J. Juul Rasmussen, and G. G. Sutyrin, 1992, *Vortex Dynamics in Two-Dimensional Flows*. Proc. of Future Directions of Nonlinear Dynamics in Physical and Biological Systems, Copenhagen. 55-58. (Plenum Publishing Company).

J. S. Hesthaven, J. P. Lynov, A. H. Nielsen, J. Juul Rasmussen, and H. L. Pécseli, 1992, *Numerical Studies of the Eulerian-Lagrangian Transformation in Two-Dimensional Isotropic Turbulence*. Proc. of 1st European Computational Fluid Dynamics Conference, Brussels. Vol. I, 223-228. (Elsevier Publishing).

J. S. Hesthaven, J. P. Lynov, J. Juul Rasmussen, and G. G. Sutyrin, 1993, *Transport Properties of Isolated Vortices on the Beta-Plane*. Proc. of Euromech 305: Dynamics and Geometry of Vortical Structures. Cortona. 120-121.

J. Juul Rasmussen, J. S. Hesthaven, J. P. Lynov, A. H. Nielsen, and M. R. Schmidt, 1994, *Dipolar Vortices in Two-Dimensional Flows*. Proc. of IMACS

3rd International Conference on Computational Physics: Nonlinear Dynamical Phenomena in Physical, Chemical and Biological Systems, Lyngby. 1-11.

J. P. Lynov, J. S. Hesthaven, J. Juul Rasmussen, J. Nycander, and G. G. Sutyrin, 1994, *Coherent Structures in Anisotropic Plasmas*. 25th AIAA Plasmadynamics and Lasers Conference. Colorado Springs. AIAA Paper No. 94-2408.

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E. A. Coutsias, T. Hagstrom, J. S. Hesthaven and D. Torres, 1995, *Integration Preconditioners for Differential Operators in Spectral τ-Methods*. Proc. of International Conference on Spectral and High Order Methods, ICOSAHOM'95, Houston, USA. 21-38.

E. A. Coutsias, J. S. Hesthaven, and J. P. Lynov, 1995, *An Accurate and Efficient Spectral Tau Method for the Incompressible Navier-Stokes Equations in a Planar Channel*. Proc. of International Conference on Spectral and High Order Methods, ICOSAHOM'95, Houston, USA. 39-54.

J. S. Hesthaven, 1995, *An Asymptotically Stable Penalty Method for Multi-Domain Solution of the Unsteady, Compressible Navier-Stokes Equations*. Proc. of International Conference on Spectral and High Order Methods, ICOSAHOM'95, Houston, USA. 445-456.

J. S. Hesthaven, 1996, *A Stable Spectral Multi-Domain Method for the Unsteady, Compressible Navier-Stokes Equations*. Proc. of The 9'th International Conference on Domain Decomposition, Bergen, Norway. 121-129.

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J. S. Hesthaven, P. G. Dinesen, and J. P. Lynov, 1998, *Pseudospectral Time-Domain Modeling of Diffractive Optical Elements*. Proc. of The 14'th Annual Review of Progress in Applied Computational Electromagnetics, Monterey, CA. 858-865.

P. G. Dinesen, L. Lading, J. P. Lynov, and J. S. Hesthaven, 1998, *Waveguides and Diffractive Elements for Non-Contact Sensors: Analysis*. Proc. of Diffractive Optics and Micro-Optics, Hawaii. 209-211.

K. Dridi and J. S. Hesthaven, 1999, *N-space Staircase-Free Finite-Difference Time-Domain Formulation for Arbitrary Material Distributions: Numerical Investigations on a Focusing Grating Coupler in Dielectric Waveguides*. Proc. of Integrated Photonics Research IPR 99, Santa Barbara, CA. 250-252.

P. G. Dinesen, J. S. Hesthaven,and J. P. Lynov, 2000, *Rigorous Three-Dimensional Analysis of Surface-Relief Gratings Using a Spectral Collocation Method*. In Diffractive/Holographic Technologies and Spatial Light Modulators 7. Optoelectronics 2000, San Jose, CA. Cindrich, I.; Lee, S.H.; Sutherland, R.L. (eds.), (International Society for Optical Engineering, Bellingham, WA, 2000), Proceedings of SPIE **3951**, 2-10.

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J. S. Hesthaven and T. Warburton, 2001, *High-Order/Spectral Unstructured Grid Methods for the Time-Domain Solution of Maxwell's Equations*. In Fourth International Workshop on Computational Electromagnetics in the Time-Domain: TLM/FDTD and Related Techniques, Nottingham, UK. C. Christopoulos (Eds). 47-53.

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G. Haller, Y. Wang, H. Salman, J. S. Hesthaven, and A. Banaszuk, 2002, *Control of Lagrangian Coherent Structures*. In IUTAM Symposium on Unsteady Separated Flows, Toulouse, France.

J. Wyller, J. S. Hesthaven, and J. J. Rasmussen, 2002, *Optical Solitons in the Femtosecond Regime*. In Nonlinear Guides Waves and Their Applications, Stresa, Italy.

C. Chauviere, J. S. Hesthaven, A. Kanevsky, and T. Warburton, 2003, *High-Order Localized Time Integration for Grid-Induced Stiffness*. 2nd MIT Conference on Fluid Dynamics, Boston. Vol II, 1883-1886.

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C. Eskilsson, A. P. Engsig-Karup, S. J. Sherwin, J. S. Hesthaven, and L. Bergdahl, *The Next Step in Coastal Numerical Models: Spectral/hp Element Methods?*. Proceedings of the 5th International Symposium on Ocean Wave Measurements and Analysis (Waves 2005), Madrid, Spain, 2005.

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J.S. Hesthaven, Y. Maday, and J. Rodriguez, *Reduced basis output bounds for harmonic wave propagation problems*. Proceedings of 8th International Conference on Mathematical and Numerical Aspects of Wave Propagation, Waves-2007, University of Reading, UK, July 2007.

Non-Refereed

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Abstracts

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J. S. Hesthaven, J. P. Lynov, J. Juul Rasmussen and G. G. Sutyrin, 1992, *Dynamical Properties of Vortical Structures on the Beta-Plane*. Geophysical Wave-and-Vortex-Systems: Dynamics, Data, Assimilation and Predictability. Rutgers University, New Jersey.

J. S. Hesthaven, J. P. Lynov and J. Nycander, 1992, *Dynamics of Non-Stationary Dipole Vortices in the Hasegawa-Mima Equation*. Proc. of 1992 International Conference on Plasma Physics, Innsbruck. Vol. 16C, part III, 1903.

J. S. Hesthaven, J. P. Lynov, J. Juul Rasmussen and G. G. Sutyrin, 1993, *Dynamical Properties of Monopolar Vortical Structures on the Beta-Plane*. Proc. of European Geophysical Society, XVIII General Assembly, Wiesbarden. Vol. II, C326. (Annales Geophysicae, Springer Verlag).

J. S. Hesthaven, 1993, *Transport Properties of Isotropic and Anisotropic Flows Illustrated by Particle Dynamics*. DPS 'Spring Meeting'. Rødby, Denmark.

J. S. Hesthaven, J. P. Lynov, A. H. Nielsen, J. Juul Rasmussen, E. G. Shapiro and S. K. Turitsyn, 1994, *Dynamics of Nonlinear Dipole Vortices*. Proc. of European Geophysical Society, XIX General Assembly, Grenoble. Vol. II, C502. (Annales Geophysicae, Springer Verlag).

G. G. Sutyrin, I. G. Yushina, J. S. Hesthaven, J. P. Lynov and J. Juul Rasmussen, 1994, *Nonlinear Interaction between a Monopolar Vortex and its Rossby Wave Wake*. Proc. of European Geophysical Society, XIX General Assembly, Grenoble, Vol. II, C512. (Annales Geophysicae, Springer Verlag).

J. S. Hesthaven and T. Warburton, 2001, *High-Order/Spectral Unstructured Grid Methods for the Time-Domain Solution of Maxwell's Equations*. Proc. of GAMM-Workshop on Computational Electromagnetics, Kiel, Germany.

A. Engsig-Karup, H. Bingham,J.S. Hesthaven, and P. Madsen, 2005, *A Discontinuous Galerkin Spectral/hp Method for High Order Boussinesq Equations*. 3rd MIT Conference on Fluid Dynamics, Boston.

J.S. Hesthaven, Y. Maday, and J. Rodriguez, 2007, *Certified DG-FEM Reduced Basis Methods and Output Bounds for the Harmonic Maxwell's Equations*. High-Order Finite Element Methods, Munich, Germany.

Plenary Talks

J. S. Hesthaven, 1998, *Spectral Penalty Methods*. International Conference on High-Order and Spectral Methods, ICOSAHOM'98, Herzliya, Israel.

J. S. Hesthaven, 2003, *Recent Advances and Emerging Challenges in Computational Electromagnetics*. Spring Meeting of the Swiss Mathematical Society, Basel, Switzerland.

J. S. Hesthaven, 2004, *Towards Flexible and Robust High-Order Methods for Multiphysics Applications*. International Workshop on Advances in Computational Multiphysics, Darmstadt, Germany.

J. S. Hesthaven, 2005, *Some Time-Integration Techniques for DGFEM Solution of Fluid Flows*. FEF05 - Thirteenth Conference on Finite Elements for Flow Problems, Swansea, Wales, UK

J. S. Hesthaven, 2005, *Computing with Uncertainties*. Norwegian Research Foundation Fall Meeting in Computational Mathematics (BeMATA), Oslo, Norway

J. S. Hesthaven, 2007, *Nodal DG-FEM for Free Surface Flows using High-Order Boussinesq Approximations*, 2nd International Conference on High-Order Non-Oscillaroty Methods for Wave Propagation, Transport, and Flow Problems, Trento, Italy.

Invited Workshop Talks

J. S. Hesthaven, 1994, *The Penalty Method for Systems of Hyperbolic and Mixed Type*. Spectral Multi-Domain Workshop, Rayleigh, North Carolina.

J. S. Hesthaven, 1997, *Spectral Methods for Viscous Compressible Flows in Complex Geometries*. Proc. of SIAM's 45'th Anniversary Meeting, Stanford University, California. p. 124.

J. S. Hesthaven, B. Yang, and D. Gottlieb, 1997, *Spectral Methods for Electromagnetic Scattering*. AFOSR Electromagnetics Workshop, San Antonio, Texas.

J. S. Hesthaven, B. Yang, and D. Gottlieb, 1998, *Advances in Pseudospectral Time-Domain Methods for Computational Electromagnetics*. AFOSR Electromagnetics Workshop, San Antonio, Texas.

J. S. Hesthaven, 1999, *Fast Stable Spectral Methods on Unstructured Grids*. Proc. of Fourth International Congress on Industrial and Applied Mathematics, Edinburgh, Scotland. p. 126.

J. S. Hesthaven and T. Warburton 2000, *High-Order Unstructured Grid Time-Domain Method in Computational Electromagnetics*. 2000 SIAM Conference on Computational Science and Engineering, Washington DC.

J. S. Hesthaven, D. Gottlieb, and T. Warburton 2000, *Advances in High-Order Time-Domain Methods for Computational Electromagnetics*. AFOSR Electromagnetics Workshop, San Antonio, Texas.

J. S. Hesthaven, 2001, *Embedded Finite Difference Methods for Wave Problems in Complex Geometries and Heterogeneous Media*. Proc. of 96'th AMS Regional Meeting. Las Vegas, NV. p. 45.

J. S. Hesthaven, D. Gottlieb, and T. Warburton 2001, *Advances in High-Order Time-Domain Methods for Computational Electromagnetics*. AFOSR Electromagnetics Workshop, San Antonio, Texas.

J. S. Hesthaven, 2002, *High-Order Methods in Time-Domain Electromagnetics*. Recent Advances and State-of-the-Art in Computational Electromagnetics, Army High Performance Computing Research Center (AHPCRC), Minnesota, MN.

J. S. Hesthaven, 2002, *High-Order Accurate Discontinuous Element Methods: Analysis, Algorithms, and Applications*. Adaptive and High-Order Methods with Applications in Turbulence. National Center for Atmospheric Research (NCAR), Boulder, CO.

J. S. Hesthaven, T. Warburton and D. Gottlieb, 2002, *High-Order Unstructured Grid Methods for Conservation Laws*. Joint Mathematics Meetings, San Diego.

J. S. Hesthaven and T. Warburton 2003, *High Order Nodal DG-FEM for the Maxwell Eigenvalue Problem*, Mafelap 2003, Brunel University, UK.

J. S. Hesthaven and T. Warburton, 2004, *High-Order Accurate Time-Domain Solution of Maxwell's Equations in Complex Geometries*. Progress in Electromagnetic Research Symposium, PIERS 2004, Pisa, Italy.

J.S. Hesthaven and C. Chauviere, 2004, *Time-Domain Solution of Maxwell's Equations with Uncertainty using Homogeneous Chaos Expansions*. Progress in Electromagnetic Research Symposium, PIERS 2004, Pisa, Italy.

J. S. Hesthaven and D. Gottlieb, 2004, *Advances in High-Order Time-Domain Methods for Computational Electromagnetics*. AFOSR Electromagnetics Workshop, San Antonio, Texas.

J. S. Hesthaven and G. Jacobs, 2005, *Towards High-Order PIC Methods on Unstructured Grids*. IPAM Workshop on Multiscale Processes in Fusion Plasma, UCLA.

C. Chauviere, J.S. Hesthaven, L. Lurati, and L.C. Wilcox, *Uncertainty Quantification in Electromagnetic Scattering*, SIAM Conference on CSE (CSE07), Costa Mesa, CA, February 2007. C. Chauviere, J.S. Hesthaven, L. Lurati, and L.C. Wilcox, *DG-FEM for CEM with Uncertainty*. 23rd International Review of Progress in Applied Computational Electromagnetics, Verona, Italy, March 2007.

S. Chun and J.S. Hesthaven, *Modeling and Design of Frozen Mode Crystals*. International Conference on Spectral and High-Order Methods (ICOSAHOM 2007), Beijing, China, June 2007.

C. Chauviere, J.S. Hesthaven, L. Lurati, and L.C. Wilcox, *Uncertainty Quantification in Electromagnetic Scattering*, International Conference on Spectral and High-Order Methods (ICOSAHOM 2007), Beijing, China, June 2007.

H Bingham, A Engsig-Karup, J.S. Hesthaven, P Madsen, and T Warburton, *DG-FEM for Modeling of Free Surface Flows using High-Order Boussinesq Approximations*. Advanced in DG-FEM Methods for PDE's, Banff, Canada, November 2007.

Invited Seminars

Risø National Laboratory, Department of Optics and Fluid Dynamics (11/95)

University of New Hampshire, Department of Mathematics (03/96); Risø National Laboratory, Department of Optics and Fluid Dynamics (08/96); Institute for Computer Applications in Science and Engineering (11/96).

California Institute of Technology, Applied Mathematics (01/97); University of Southern California, Department of Mathematics (01/97); New York University, The Courant Institute (05/97); Columbia University, Applied Physics (09/97);

Technical University of Denmark, Institute of Electromagnetics (10/97); Risø National Laboratory, Department of Optics and Fluid Dynamics (11/97); North Carolina State University, Department of Mathematics (11/97); Rensselaer Polytechnic Institute, Department of Mathematical Sciences (11/97).

Massachusetts Institute of Technology, Applied Mathematics (03/1998); Brown University, Division of Applied Mathematics (04/1998); Brown University, Division of Applied Mathematics (12/1998); Florida State University, Department of Mathematics (12/1998). University of Michigan, Department of Mathematics (01/1999); Purdue University, Department of Mathematics (02/1999); University of North Carolina at Chapel Hill, Department of Mathematics (02/1999);

Penn State University, Department of Mathematics (02/1999); Institute for Computer Applications in Science and Engineering, NASA Langley Research Center, VA (05/99); Old Dominion University, Department of Mathematics (09/1999); University of Colorado, Boulder, Department of Applied Mathematics (10/1999); United Technologies Research Center, Hartford (10/99).

Rensselaer Polytechnic Institute, SCOREC (02/2000); Arizona State University, Department of Mathematics (03/2000); Lawrence Livermore National Laboratory, CASC (03/2000); Lawrence Livermore National Laboratory, A Division (03/2000); Duke University, Department of Electrical Engineering (05/2000); Technical University of Denmark, Department of Mathematical Modeling, Denmark (07/2000).

United Technologies Research Center, Hartford (05/2001); Risø National Laboratory, Optics and Fluid Dynamics Department, Denmark (06/2001); Swedish Defense Research Agency, Aeronautics Division, FFA, Sweden (08/2001); Uppsala University, Department of Scientific Computing, Sweden (08/2001); University of Delaware, Department of Mathematical Sciences (10/2001); Carnegie Mellon, Department of Mathematical Sciences (10/2001).

Stanford University, Department of Mathematics (02/2002); INRIA, France (05/2002); Swedish Defense Research Agency, Aeronautics Division, FFA, Sweden (05/2002); University of Basel, Department of Mathematics, Switzerland (06/2002). Chalmers University of Technology, Sweden (09/2002); Massachusetts Institute of Technology, Mechanical Engineering (10/2002); Arizona State University, Department of Mathematics (11/2002); University of Texas, Austin, TICAM (11/2002), NASA Langley Research Center, Electromagnetics Branch, Langley, VA (12/2002).

University of Notre Dame, Department of Mathematic (01/2003); Chalmers University of Technology, Sweden (08/2003); Purdue University, Department of Mathematics (11/2003).

University of Wyoming, Department of Mathematic (04/2004); North Carolina State University, Department of Mathematic (04/2004); University of North Carolina at Charlotte, Department of Mathematic (04/2004); Sandia National Laboratory (05/2004); Kirtland AFB (05/2004). INRIA-Rocquencourt, France (07/2004); INRIA-Sophia-Antipolis, Nice, France (07/2004); University of Texas, El Paso, Department of Mathematics (11/2004); MIT, Department of Aeronautics (12/2004).

Uppsala University, Department of Scientific Computing, Sweden (02/2005); Ohio State University, Department of Electrical Engineering, IEEE Seminar,

(03/2005), CEMRACS, Marseille, France, (07/05).

Technical University of Denmark, Department of Mechanical Engineering (04/06); ONERA, Paris, France (04/06).

Argonne National Laboratory, Advanced Photon Source (01/2007); Ocean University of China, Department of Mathematics, Qingdao, China (6/07); Xi'an Jian Tong University, Department of Mathematics, Xi'an, China (6/07); Cornell University, Theory Center (11/07); Technical University of Denmark, Institute of Mathematical Modeling (12/07);

Pending

J.S. Hesthaven and S.O. Kaber, *Jacobi-Pade Approximants*

L Lurati and J.S. Hesthaven, *Multivariate Pade Reconstructions*

S Chun and J.S. Hesthaven, *High-Order Accurate Thin Layer Approximations for Time-Domain Electromagnetics and Their Implementation. I: Coatings*

S Chun, H Haddar, and J.S. Hesthaven, *High-Order Accurate Thin Layer Approximations for Time-Domain Electromagnetics and Their Implementation. II: Transmission Layers.*

S Chun and J.S. Hesthaven, *High-Order Accurate Thin Layer Approximations for Time-Domain Electromagnetics and Their Implementation. III: Dispersive Media.*

G.J Gassner, F Lorcher, C-D Munz and J.S. Hesthaven, *Polymorphic High-Order Nodal Elements and their application to Discontinuous Galerkin Methods*

Research Grants

Current

CAREER: Towards Robust and Efficient High-Order Adaptive Computational Methods for Conservation Laws in Complex Geometries. PI. National Science Foundation, DMS-0132967. 2002-2007.

MURI: Conformal Antenna and Array Design using Noval Electronic Materials, ONR. Co-PI. Lead PI Prof J. Volakis. Subcontract to Ohio State University. 2004-2008.

Collaborative Research ITR: An Integrated Simulation Environment for High-Resolution Computational Methods in Electromagnetics with Biomedical Applications, NSF CNS-0325110. Co-PI. Lead PI Prof T. Warburton. Subcontract to University of New Mexico. 2004-2008.

CGM Research: Developing a Multiscale Model for Melting and Melt Migration in the Mantle, NSF-CMG, 2005-2007. Co-PI.

FRG: Collaborative Research: Developing Spectral Methods for Numerical Solutions of the Einstein Equations. NSF, PI. 2006-2009.

Discontinuous Galerkin Methods for Kinetic Plasma and Hybrid Plasma/Fluid Modeling with Applications to Microwave Generation and Laser-Matter Interaction, AFOSR, PI, 2007-2010.

Reduced Basis Approximation and A Posteriori Error Estimation for Parametrized Partial Differential Equations with Application to Real-Time Reliable Estimation and Optimization, AFOSR, PI, 2007-2010.

Novel Mathematical and Computational Techniques for Robust Uncertainty Quantification, AFOSR, Co-PI, 2007-2010.

Novel Techniques for Linear Accelerator Modeling and Design, Department of Energy, Argonne National Laboratory, PI. 2007-2008.

Pending

International Conference on Spectral and High-Order Methods 2009 (ICOSA-HOM'2009). Co-PI, NSF.

Completed

High Order Methods for the Numerical Simulation of High Speed Flows. Co-PI (PI - D. Gottlieb; Co-PIs - C.W. Shu and W.S. Don). AFOSR F49620-99-1-0077. 1998-2001.

Facility for Local Postprocessing, Visualization and Animation of Remotely Simulated Very Large Temporal Datasets. Co-PI (w/ D. Gottlieb and C.W. Shu). Department of Defense, AFOSR F49620-00-1-0211. 2000-2001.

SIAM Travel Award to attend ICIAM'99 in Edinburgh, Scotland. 1999.

Collaborative Research on High Bit-Rate Communication: From Mathematical Development to Fiber Design. Co-PI (w/ C. K. R. T. Jones), National Science Foundation, DMS-0073923. 2000-2003.

Alfred P. Sloan Research Fellowship. PI, Alfred P. Sloan Foundation. 2000-2003.

High-Order Accuracy Methods for the Modeling and Design of Micro Optics and Photonic Devices. PI, Army Research Office, ARO-40464-MA. 2001-2004.

Advancing the Frontiers of Broad Band CEM for Modeling Full-Scale Treated Targets. Co-PI (w/ D. Gottlieb), DARPA, F33615-01-C-1866, (subcontract to HyPerComp Inc., CA). 2001-2004.

High-Order Embedded Interface Methods for Wave-Problems. PI. National Science Foundation, DMS-0074257. 2000-2003.

NASA Graduate Fellowship. PI (Graduate student - A. Kanevsky), NASA Langley Research Center, VA, NGT-1-01024. 2001-2004.

Workshop on Advances and Challengdes in Time-Integration of PDE's. Co-PI (w/ D. Gottlieb). AFOSR, Computational Mathematics. 2003. F49420-03-1-0177.

International Conference on Spectral and High-Order Methods 2004 (ICOSA-HOM'2004). PI, DARPA/AFOSR, Computational Mathematics, 2003-2004. F49620-03-1-0335.

7th International Conference on Mathematical and Numerical Aspects of Waves (WAVES'05), AFOSR, PI. 2005.

7th International Conference on Mathematical and Numerical Aspects of Waves (WAVES'05), NSF, PI. 2005.

NSF-SCREMS: Enrichment and Integration of Networked Computing Resources for the Mathematical Sciences, NSF, Co-PI. 2004-2006.

Hierarchic Computing Facility Enabling Novel Algorithm Developments and Postprocessing for Large Scale Wave Problems, AFOSR-DURIP, PI. 2005-2006.

High-Order Accurate Particle-in-Cell (PIC) Methods on Unstructured Grids with Applications to Microwave Generation and Accelerator Modeling. AFOSR. 2005-2006. PI.

Workshop on Advances and Challengdes in the Solution of Stochastic Partial Differential Equations. PI, AFOSR, 2005-2006.

Collaborative Effort on Approximate Boundary Conditions for Computational Wave Problems. PI. National Science Foundation, International Programs, INT-0307475. 2003-2007.

High-Order Accurate Time-Domain Electromagnetics and RCS Prediction for Dynamic or Uncertain Scatterers, PI. AFOSR Test and Evaluation Research Program. 2004-2007.

Novel Approaches to the Modeling and Computations of Wave Phenomena. DARPA Computational Mathematics. Co-PI. 2004-2007.

Service to the University

To the Division

Associate Department Chair (2006-present).

Maintains group-web-page and electronic report series 'Scientific Computing Reports' (2000-present).

Member of Undergraduate Committee (1999-2000).

Organizer of the Scientific Computing Seminars at the Division of Applied Mathematics, Brown University. (1998-2005).

Member of Graduate Committee (2000-2005).

Member of Hiring Committee for position in Probability and Statistics (2001-2005).

Member of Hiring Committee for position in Stochastic PDE's (2006).

Member of the preliminary examination committee for the following PhD-students: Andrew Jones(1997), Chun-Hao Teng(1998), Mi-Sun Min(1998), Changqing Hu(1998), Sarah Dance(1998), Jae-hun Jung(1999), Jue Yan(1999), Yun Gao(1999), Gershom Kutlikoff(1999), Hui-Ming Pai(1999), Qian Yong Chen(2000), Didier Lucor (2002), Shanqin Shen (2002), Robert Strain (2002), Vasileios Symeonidis (2002), Jin Xu (2002), Sirod Sirosup (2003), Jennifer Libertini (2003), Eric Keaveny (2005), Dmitri Fedesov (2005), Xian Lou (2006), Guang Lin (2006), Nitsan Bengal (2006), Leopold Grinberg (2006), Tom Dean (2007), Kyongmin Yeo (2007).

Chair of the preliminary examination committee for the following PhD-students: Alex Kanevsky (2001), Lucas Wilcox (2003), Laura Lurati (2003), Sehun Chun (2005), Akil Narayan (2005), Alan Schmienz (2006), Andreas Kloeckner (2007).

Reader on PhD-thesis by: Baolin Yang (1998), Changqing Hu(1999), Olga Lepsky(2000), Jing Shi(2001), Chun-Hao Teng(2001), Jue Yan(2002), Jamieson Moeser(2002), Robert M. Kirby (2002), Mi-Sun Min (2002), Kurt Sebastian (2003), Yongtao Zhang (2003), Jennifer Ryan (2003), Fengyan Li (2004), Qian Yong Chen (2004), Sirod Sirosup (2004), Shanqin Chen (2005), Zhang Xu (2005). Ching-Shan Chou (2006). Ling Yuan (2006), Xialiang Wan (2007).

To Brown

Freshman/Sophomore academic advisor (2000-2002).

Member of Provost's hiring committee for director of CCV (2004-2006).

Member of Provost's committee on Science Cohort Initiative (2005-2006).

Member of Center for Computing and Visualization (CCV) Advisory and Oversight Board (2004-2006).

Member of University Committee of Undergraduate Science Education (2006-2007)

Member of Computing Advisor Board (CAB) (2003-2005, 2006-present).

Member of Advisory Board for the Sheridan Center for Teaching Excellence (2006-present).

Professional Activities and Services

Committees

Member of Scientific Committee of *6th International Conference on Mathematical and Industrial Aspects of Wave Propagation*, University of Jyvaskyla, Finland, 2003

Member of Scientific Committee of *7th International Conference on Mathematical and Industrial Aspects of Wave Propagation*, Brown University, 2005

Member of Scientific Committee of *1st Finite Element Methods in Engineering and Science (FEMTEC 2006)*, University of Texas, El Paso, 2006

Permanent Member of Scientific Committee of *International Conference on Spectral and High-Order Methods (ICOSAHOM)*, 2004-present.

Member of Scientific Committee of *8th International Conference on Mathematical and Industrial Aspects of Wave Propagation*, Reading, UK, 2007.

Member of Scientific Committee of *2nd Finite Element Methods in Engineering and Science (FEMTEC 2008)*, University of Texas, El Paso, 2008.

Conferences

Co-organized (w/ E. Michielssen, UIUC) mini symposium *Time-Domain Solvers in Computational Electromagnetics: Trends and Challenges.* SIAM Annual Meeting, San Diego 2001.

Organized (w/ C.W. Shu, M. Carpenter (NASA), and D. Gottlieb) *Workshop on Advances and Challengdes in Time-Integration of PDE's.* Brown University, August 2003.

Organized (w/ C.W. Shu, G. Karniadakis, and D. Gottlieb) *6'th International Conference on High-Order and Spectral Methods (ICOSAHOM'04)*, Brown University, June 2004.

Organized (w/ C.W. Shu, W. Cai, W.S. Don) *International Conference on the Research Trend for PDE Modeling and Computation on the Occation of David Gottlieb's 60 Birthday*, Brown University, November 2004.

Organizer (w/ C.W. Shu, D. Gottlieb, and P. Monk (U Delaware)) of *7'th International Conference Mathematical and Numerical Aspects of Wave Propagation (WAVES'05)*, Brown University, June 2005.

Organizer (w/ P. Dupuis, B. Rozovski, and D. Gottlieb) of *Workshop on Advances and Challenges in the Solution of Stochastic Partial DIfferential Equations*, Brown University, October 2006.

External Reader

Richard Archibald, Department of Mathematics and Statistics, Arizona State University. PhD-thesis. 2002.

Fredrik Edelvik, Department of Scientific Computing, Uppsala University, Sweden. PhD-thesis. 2002.

David Fuhrman, Department of Mechanical Engineering, Maritime Engineering, Technical University of Denmark. PhD-thesis. 2004.

Eugene Kashdan, Department of Applied Mathematics, Tel Aviv University, Israel. PhD-thesis. 2004.

Jan Martendal Rasmussen, Department of Mathematical Modeling, Numerical Analysis, Technical University of Denmark. PhD-thesis. 2004.

Julien Diaz, JJ Lions Laboratory, University of Paris VI. PhD-thesis, 2005.

Jesper Riishede, Center for Communication and Optical Materials, Technical University of Denmark. PhD-thesis. 2005.

Eiving Brodal, Physics Department, University of Tromsø. MSc-thesis, 2005.

Jean-Francoise Corbett, Department of Geophysics, University of Copenhagen. PhD-thesis, 2007.

Editorial

Member of the editorial board of *Journal of Scientific Computing*, Kluver Publishing, 2003-present.

Member of the editorial board of *SIAM Journal of Scientific Computing*, SIAM, 2005-present.

Member of the editorial board of *Mathematical Modelling and Applied Computing (MMAC)*, Research India Publications, 2006-present.

Member of the editorial board of *International Journal of Computing Science and Mathematics*, Inderscience Publishers (UK), 2006-present.

Member of the editorial board of *Open Applied Mathematics Journal (OAM)*, Bentham Science Publishers(UK), 2006-present.

Member of the editorial board of *Communications in Computational Physics (CiCP)* Global Science Press (Hong Kong), 2007-present.

Peer Reviewing

ACM Transactions on Mathematical Software, *AIAA Journal*, *Applied Numerical Analysis and Computational Mathematics*, *American Mathematical Society*, *Applied and Computational Harmonic Analysis*, *Applied Numerical Mathematics*, *Applied Optics*, *BIT*, *Bulletin of the Seismological Society of America*, *Communications in Applied Analysis*, *Communications in Mathematical Sciences*, *Computers and Fluids*, *Computers and Mathematics with Applications*, *IEEE Transactions on Antennas and Propagation*, *IEEE Transactions on Geoscience and Remote Sensing*, *IEEE Transactions on Electromagnetic Compatibility*, *IEEE Transactions on Microwave Theory and Techniques*, *International Journal of Mathematics and Mathematical Sciences*, *International Journal on Numerical Methods in Engineering*, *Journal of Computational Physics*, *Journal of Computational and Applied Mathematics*, *Journal of Engineering Mathematics*, *Journal of Fluid Mechanics*, *Journal of Lightwave Technology*, *Journal of the Acoustical Society of America*, *Journal of the Optical Society of America A*, *Journal of Scientific Computing*, *Mathematics of Computation*, *Mathematical Modelling and Numerical Analysis*, *Mathematics and Computer in Simulation*, *Numerical Algorithms*, *Optics Express*, *Photonics Technology Letters*, *Physica D*, *Physica Scripta*, *Physics Review B*, *Proceedings of the Royal Society*

	A, *Radio Science*, *Transcations of the Royal Society*, *SIAM Journal on Applied Mathematics*, *SIAM Journal on Numerical Analysis*, *SIAM Journal on Scientific Computing*, *Theoretical and Computational Fluid Mechanics*, *Ultrasonics*, *Wave Motion*, and *Zeitschrift für Angewandte Mathematik und Mekanik*.
	John Wiley & Sons, Inc., *Cambridge University Press*, *Prentice Hall Publishing*, *CRC Press*, *Springer Verlag*, and *SIAM Publishing*.
	US National Science Foundation, *Science Foundation Ireland*, *US Department of Energy*, *US Army Research Office*, *US Airforce Office of Scientific Research*, *United States-Israel Binational Science Foundation*, *Israel Science Foundation*, *Azerbaijan-U.S. Bilateral Grants Program*, *Research Council of Norway*, *Swedish Research Foundation*. *Research Foundation of the Netherlands (NWO)* and served on invited review panels (ITR, 2001; FRG 2003) for *National Science Foundation* and the *Research Council of Norway* (eVITA, 2006).
Memberships	*Society for Industrial and Applied Mathematics (SIAM)*, *American Mathematical Society (AMS)*, *Danish Optical Society (DOPS)*.

Honors and Awards

08/1995	NSF Postdoctoral Fellowship, Advanced Scientific Computing, National Science Foundation.
06/1999	Journal of Computational Physics Outstanding Reviewer Award.
09/2000	Alfred P. Sloan Research Fellowship, Alfred P. Sloan Foundation.
07/2001	Manning Assistant Professorship, Brown University.
03/2002	NSF CAREER Award, Division of Mathematical Sciences, National Science Foundation.
2003-	Listed in Marquis Who's Who in America
2004-	Listed in Who's Who among Theachers
2005-	Listed in Who's Who among Scientists and Engineeres in America.
03/2004	Philip J. Bray Award for Teachning Excellence in the Physical Sciences for 2004-2005, Brown University, USA.
05/2004	Master of the Arts, Ad Eundum, Brown University, USA.

Teaching and Advising Experience

Summer Schools	*DCAMM Summer School 2000: Computational Aspects and Applications of Spectral Methods*. Main speaker. 22 international participants. Technical University of Denmark, 06/2000.
	CEA-EDF-INRIA Winterschool in DG-FEM, INRIA-Rocquencourt, France. One of two main lectures at graduate/post graduate level. 50 participants. 11/2006.

Mini Courses

Montreal Scientific Computing Days. Main speaker. 80 participants. University of Montreal and McGill University, Montreal, Canada. 02/2005.

Discontinuous Galerkin Methods for Partial Differential Equations. I. A Mathematical Introduction. Special 1 week intensive PhD-level course. 26 students. Technical University of Denmark, 12/2005.

Discontinuous Galerkin Methods for Partial Differential Equations. II. A Practical Introduction. Special 1 week intensive PhD-level course. 16 students. Technical University of Denmark, 5/2006.

Simulation and Visualization of Fluid Phenomena, Special 2 week intensive PhD-level course. 14 students. Technical University of Denmark, 08/2007.

Teaching

AM34 *Methods of Applied Mathematics II* (S03)

AM117 *Computational Linear Algebra* (F99, F00, F03, F06, F07)

AM118 *Numerical Methods for Differential Equations* (S01, S03, S07)

AM255 *Finite Difference Methods for Partial Differential Equations* (F98, F01, F04)

AM256 *Spectral Methods for Time-Dependent Partial Differential Equations* (S95, F96, S98, S00, S02, S05, S08).

AM282 *Topics Course: Numerical Solution of Ordinary Differential Equations: IVP Problems and PDE Related Issues* (S04).

Directing individual research students and reading course students in various subjects of numerical analysis. Division of Applied Mathematics, Brown University, 01/1997-present.

Undergraduate

Anthony Giunta, Honors Thesis, Brown University, Spring 2002.

Kazutoshi Yamazaki, Honors Thesis, Brown University, Spring 2002.

Graduate

Claus Bendtsen and Lars K. Lundin, MSc, 1992, *Spectral Methods on a Massively Parallel Computer*. Advisor (w/ Prof. P.G. Thomsen), Institute of Mathematical Modeling, Technical University of Denmark, Denmark.

Baolin Yang, PhD, 1998, *Spectral Methods and Absorbing Boundary Conditions for Maxwell's Equations*. Advisor (w/ Prof. D. Gottlieb), Division of Applied Mathematics, Brown University.
Researcher at Cadance Inc.

Chun Hao Teng, PhD, 2001, *Numerical Methods for Wave Problems in Complex Geometries*. Advisor (w/ Prof. D. Gottlieb), Division of Applied Mathematics, Brown University.
Researcher at Taiwan National University, Taiwan.

Qianyong Chen, PhD, 2004, *Topics in Spectral Methods*. Advisor (w/ Prof. D. Gottlieb), Division of Applied Mathematics, Brown University.
Industrial postdoc at the IMA and Exxon Corporation.

Alex Kanevsky, PhD, 2006. *Implicit-Explicit Runge-Kutta Methods for Fluid Flow Simulations*, Advisor (w/ Prof. D. Gottlieb), Division of Applied Mathematics, Brown University.
Postdoctoral reseacher at the Courant Institute of Mathematical Sciences, NYU.

Laura Lurati, PhD, 2006. *Spectral Methods for Dealing with Uncertainty and the Gibbs Phenomenon.* Advisor, Division of Applied Mathematics, Brown University.
Industrial Postdoctoral researcher at Boeing and the Institute of Mathematics and its Applications (IMA), University of Minnesota.

Lucas Wilcox, PhD, 2006. *High-Order Accurate Methods for Solving the Time-Harmonic Maxwell's Equations.* Advisor, Division of Applied Mathematics, Brown University.
Postdoctoral researcher and ICES Fellow, ICES, University of Austin, Texas.

Sehun Chun, PhD, 2005-present. Advisor, Division of Applied Mathematics, Brown University.

Akil Narayan, PhD, 2005-present. Advisor, Division of Applied Mathematics, Brown University.

Alan Schiemenz, PhD, 2005-present. Advisor. Division of Applied Mathematics, Brown University.

Andreas Kloeckner, PhD, 2007-present. Advisor, Division of Applied Mathematics, Brown University.

Postgraduate

Palle Dinesen. 1999-2000.
R&D Manager, Kaleido Technology, Denmark.

Tim Warburton. 1999-2001
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