

Curriculum Vitae: George Em Karniadakis, Professor, (h-index: 52)

Division of Applied Mathematics
Brown University
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Date: December 4, 2012

DEGREES

Doctor of Philosophy
Department of Mechanical Engineering, Minor in Applied Mathematics
Massachusetts Institute of Technology, 1987.

Master of Science in Mechanical Engineering,
Massachusetts Institute of Technology, 1984
(Bodossaki Foundation Fellow).

Diploma of Engineering in Mechanical Engineering and Naval Architecture
National Technical University of Athens, 1982 (Honors).

POSITIONS HELD SINCE OBTAINING FIRST DEGREE

July 1996 - present, Professor, Division of Applied Mathematics, Brown University.

Sept. 2000 - present: Visiting Professor/Senior Lecturer/Research Scientist, MIT (Ocean/Mechanical Engineering).

Jan. 1994 - June 1996, Associate Professor, Division of Applied Mathematics, Brown University.

Fall quarter 2007: Visiting Professor, College of Engineering, Peking University.

Spring quarter 1993: Visiting Professor, Dept. of Aeronautics and Applied Mathematics, Caltech.

Sept. 1988 - Dec. 1993: Assistant Professor, Dept. Mechanical and Aerospace Engineering, Princeton U.; also Associate Faculty of the Program in Applied and Computational Mathematics.

April 1988 - August 1988: Research Associate, MIT; Advisor: A.T. Patera.

Sept. 1987 - March 1988: Research Fellow at the Center for Turbulence Research at Stanford U./NASA Ames Research Center; Advisors: P. Moin and J. Kim.

June 1987 - August 1987: Lecturer, Dept Mechanical Engineering, MIT.

July 1984 - May 1987: Research Assistant, MIT; Advisors: A. T. Patera and B.B. Mikic.

Jan. 1983 - June 1984: Research Assistant, MIT; Advisor: W. Unkel.

June 1982 - Dec. 1982: Research Assistant, National Technical University of Athens; Advisor: T. Loukakis.

HONORS

- US Association of Computational Mechanics, 2007 Computational Fluid Dynamics award.
- Fellow of the Society for Applied and Industrial Mathematics (SIAM), 2010-.
- Fellow of the American Physical Society (APS), 2004-.
- Fellow of the American Society of Mechanical Engineers (ASME), 2003-.
- Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), 2006-.

- 17th Robert Bruce Wallace Lecture award, MIT, 2003.
- Rheinstein junior faculty award, Princeton University, 1992.
- DOE/SCIDAC visualization award, 2011, (with ANL researchers).
- Finalist, Gordon Bell Prize, Supercomputing'11, (with Grinberg, Morozov, et al.).
- Best poster in Supercomputing'08 (with L. Grinberg, J. Cazes) on “A Scalable Domain Decomposition Method for Ultra-Parallel Arterial Flow Simulation, SC08, Austin, TX, November 2008.

PATENTS

1. G.E. Karniadakis and Y. Du, “Method and Apparatus for Reducing Turbulent Drag”, Patent No. 6,333,593 B1, Dec 25, 2001.
2. G.E. Karniadakis, K. Breuer and V. Symeonidis, “Method and Apparatus for Reducing Turbulent Drag (continuing part)”, Patent No. 6,520,455 B2, Feb. 18, 2003.
3. C. Chrysostomidis, D. Sura, G.E. Karniadakis, C. Jaskolski, R. Kimbal, “Lorentz Acoustic Transmitter for Underwater Communications”, Patent No. 7,505,365, March 17, 2009.

INVITED/KEYNOTE SEMINARS

University of Arizona, 1987; Brown University, 1987; Yale University, 1987; Johns Hopkins, 1987; Columbia University, 1987; Princeton University, 1987; Tufts University, 1987; Carnegie Mellon University 1987; UCSD, 1987; Caltech, 1987; Stanford University, 1987; Nasa Ames, 1987; University of Illinois at Urbana-Champaign, 1987; Stanford University, 1988; MIT, 1988; Princeton University, 1988; Nasa Langley, 1989; Naval Research Laboratory, 1989; University of Delaware, 1990; Brown University, 1990; Nasa Lewis, 1991; University of North Carolina, 1991; MIT, Sea Grant, 1991; CCNY, Levich Institute, 1991; Lehigh University, 1991; Naval Research Laboratory, 1991; Princeton, PPL, 1991; University of Colorado, Boulder, 1991; ICFD, Tokyo, 1991; Von Karman Institute, 1992; Sydney University, 1992; Melbourne University, 1992; CSIRO, course on CFD, 1992; Brown University, 1992; Wright Patterson Air Force Base, 1992; Princeton University, 1993; Yale University, 1993; INRIA, course on CFD, 1993; NSF, 1993; Caltech, 1993; ETH- Zurich, 1993; Clarkson University, 1993; Rutgers University, 1993; Brown University, 1994; IBM, 1994; MIT, 1994; PSC/Carnegie Mellon, 1995; University of Rhode Island, 1995; Boston University, 1995; Virginia Polytechnic Institute, 1995; Hong Kong University, 1995; Institute for Scientific Computing, Chinese Academy of Sciences, 1995; University of Tokyo, 1995; University of Notre Dame, 1995; Cornell Theory Center, 1995; MIT, 1996; CCNY, Levich Institute, 1996; UC Santa Barbara, 1996; Wright Patterson Air Force Base; AFOSR, Boiling Air Force Base, 1996; Nuclear Regulatory Commission, 1996; National Institute of Standards and Technology, 1996; AIAA 1996; University of Rhode Island, 1996; University of Maryland, 1996; University of Cincinnati, 1997; Worcester Polytechnic Institute, 1997; Penn State University, 1997; MHD Workshop, Dresden, Germany, 1997; First AFOSR Conference on DNS/LES, 1997; ASME Heat Transfer Conference, 1997; 10th Domain Decomposition Conference, 1997; 10th International Symposium on Unmanned Untethered Submersible Technology, 1997; Cornell Workshop on POD-Galerkin Models for the Dynamics and Control of Complex Flows, 1997; University of Michigan, 1997; AFOSR/Princeton Workshop, 1998; DOE/Oakridge Workshop, 1998; DARPA/NUWC Workshop, 1998; NSF Workshop, 1998; AIAA Fluid Dynamics Conference, 1998; DARPA/ONR Meeting, 1998; SIAM Symposium, 1998; ICOSAHOM'98 Symposium, 1998; ASME/FED, 1998; 30th Anniversary Japanese Society of Fluid Mechanics, 1998; University of Tokyo, 1998; Turkey Workshop on DNS/LES; ECCOMAS Symposium, 1998; University of Bergen, 1998; NCSA/NSF Meeting, 1998; Norsk Hydro, 1998; Caltech Symposium on Validation and Verification, 1998; Argonne National Labs, 1999; Boston University, 1999; Los Alamos 1999; University of Texas A & M, 1999; American Physical Society, 1999, Los Alamos, 1999; DeepStar/BP Amoco Workshop, 1999; MIT, 2000; Woods Hole Oceanographic Institute, 2000; JASON, 2000; SUNY/Buffalo, 2000; University of Pennsylvania, 2001; Modeling & Simulation of Microsystems, 2001; AFOSR Uncertainty Workshop, 2001; Nasa Langley/ICASE, 2001; ECCOMAS, 2001; DARPA Microfluidics Workshop, 2001; TAICDL, 2001; DoD/DOE/NASA Mission Computing Conference, 2002; Northwestern University, 2002; WPI, 2002; MIT, 2002; BBVIV3, 2002; Wallace Lecture MIT, 2003; CSE-UIUC, 2003; WEHeraeus-Seminar, Bad Honnef, 2003; Imperial College, 2003; Los Alamos, 2004; University of Pittsburgh, 2004; University of Tokyo, 2004; CFD2004 Canada, 2004; Johns Hopkins University, 2004; University of Rhode Island, 2004; Tufts University.

2004; University of Houston, 2005; Texas A&M University, 2005; University of Oklahoma, 2005; Oklahoma State University, 2005; 8th US National Congress on Computational Mechanics, 2005; ECCOMAS/Coupled Problems, 2005; HERCMA, 2005; NSF, 2005; Levich Institute, 2005; Northwestern University, 2006; University of Notre Dame, 2006; Illinois Institute of Technology, 2006; University of Illinois, Urbana-Champaign, 2006; Purdue University, 2006; ARO, North Carolina, 2006; Clemson University; University of Massachusetts; IUTAM General Assembly, 2006; Caltech, 2006; Tsinghua University, 2007; Peking University, 2007; Chinese Academy of Sciences (Institutes of Mechanics and of Scientific Computing), 2007; Shanghai University, 2007; Georgia Tech, 2008; Louisiana State University, 2008; Israel Symposium on Computational Mechanics, 2008; Tel-Aviv University, 2008; The Institute of Cyprus, 2008/2009; University of North Carolina, 2009; University of Minnesota (Straub lecture), 2009; FDA/NIH/NSF Workshop, 2009; MIT, 2009; NIH Workshop, 2010; NASPDE/Freiberg, 2010; Multiscale workshop/ETH, 2010, 6th ICCFD, 2010; IUTAM-BLUBOF, 2011; SCPDE, 2011; Isaac Newton/WIMCS, 2011; von Neumann Symposium/AMS, 2011; ECCOMAS Coupled Problems, 2011; International Symposium on UQ, 2011; 4th-SCPDE, 2011; MNF, 2011; Shanghai Jiao Tong University, 2011; Fudan University, 2011; Stanford University, 2012; University of British Columbia, 2012; University of Washington, 2012; Pacific Northwest National Lab, 2012; NENAD, 2012; INRIA, 2012; City University London, 2012; Engineering Mechanics/ASCE, 2012.

COMMITTEES and CONFERENCE ORGANIZATION

- Member of the APS Cyberfluids Committee (2008 - 2010).
- Member of Scientific Committee of the annual SIAM conference (2004).
- Scientific Committee of International Conference on Transport Phenomena in Micro and Nanodevices, (2004).
- Member of Scientific Committee of FIV2004/FIV2008 conferences (2004/2008).
- Member of Scientific Committee of BBVIV3 Conference on Wakes 2002/2005;
- Member of Scientific Committee of IUTAM Conference on Unsteady Flows 2002;
- Member of Scientific Committee of FEM in Flow Problems 2000;
- Member of Scientific Committee of IUTAM Conference on Wakes 2000;
- Member of Scientific Committee of ICOSAHOM, 1998 - present.
- Member of Scientific Committee of 1st-3rd AFOSR Conferences on DNS/LES, 1997, 1999, 2001.
- Member of Scientific Committee of 11th International Parallel Processing Symposium, 1997;
- Member of Scientific Committee of 2nd International Colloquium on Bluff Body Aerodynamics and Applications, Melbourne, 1992;
- Member of the Editorial Board for the Computational Fluid Dynamics Journal, 1992-;
- Member of the Editorial Board for the International Journal of Computational Engineering Science, 2005- ;
- Member of the Editorial Board for Communications in Computational Physics, 2005-;
- Associate Editor of Acta Mechanica Sinica, 2004 - ;
- Member of the Editorial Board for International Journal for Uncertainty Quantification , 2010-;
- Member of the Editorial Board for Computer Methods in Applied Mechanics and Engineering (CMAME) , 2010-;
- Associate Editor of Journal of Computational Physics, 2006-;
- Associate Editor of J. Fluids Engineering, 1993-96; 2000-2003;
- Member and chairman of the Peer Review Board of NSF (PSC/NCSA) supercomputing Centers, 1993-96;
- Member of the Users Advisory Board for Supercomputing: NCSA, 1998- ; PSC; 2000- . NPACI Allocations Committee: 2001- .
- Member and chair of the Teragrid NSF panel 2000-04.
- Member of the WTEC panel to evaluate the status of computational science, 2007-2008.
- Member of the Editorial Board of M2AN (Mathematical Modeling and Numerical Analysis), 2008-2012.
- Chief Organizer of ICOSAHOM'04, June 2004 (with Gottlieb, Shu & Hestahven).
- Organizer of Symposium on Microfluidics, WCCM V, July 2002 (with N. Aluru).
- Organizer of Symposium on Instability/Transition, IUTAM, April 2002.
- Organizer of Symposium on Microfluidics, AIAA, January 2001 (with A. Beskok).
- Organizer of Symposium on FEM & LES, FEM 2000, April 2000, Austin, TX.
- Organizer of "International Symposium of Discontinuous Galerkin Methods", May 24-26, 1999, Newport, RI (with C.-W. Shu and B. Cockburn).
- Organizer of Symposium on "High-Order Methods for Compressible Flow Calculations", SIAM Conference, Stanford University, July 1997 (with C.-W. Shu);

- Organizer of ONR Workshop on “Flow/Wave-Structure Interactions”, Brown University, June 1997 (with T.F. Swean);
- Organizer of Symposium on “HP/Spectral finite elements in computational mechanics” ICES’95, July 30-August 3, 1995, Mauna Lani, Hawaii, (with B. Guo);
- Organizer of International Symposium on “Parallel Computing for Multi-phase Flows”, ASME, Chicago, November 1994 (with S. Kim and M. Vernon);
- Organizer of Symposium on “Spectral Methods and Applications”, 2nd U.S. National Congress on Computational Mechanics, Washington, D.C., August 1993;
- Organizer of Symposium on “High-Order Schemes for Shock Wave Calculations”, SIAM Conference, July 1993 (with C.-W. Shu);
- Organizer of Symposium on Theoretical and Computational Fluid Dynamics, 29th Annual Meeting of the Society of Engineering Science at UCSD, La Jolla, September 1992 (with C. Pozrikidis and Y. Kevrekidis);
- Organizer of Symposium on “Parallel Aspects of High-Order Method”, ICOSAHOM, Montpellier, June 1992;
- Organizer of DARPA-ONERA USA-French Conference on “Wavelets and Turbulence”, Princeton, June 1991;

RESEARCH ACCOMPLISHMENTS

First simulation of the human arterial tree on the Teragrid.

Development of generalized polynomial chaos methods for modeling uncertainty in unsteady flows.

First direct (DNS) and large-eddy simulation (LES) of turbulence in complex geometries.

First theoretical/numerical work on gas micro-flows.

Discovery of secondary instability/transition in wake flows.

Discovery of a new drag reduction technique using electromagnetic forcing (two patents).

Development of high-order methods on unstructured meshes.

Development of high-order discontinuous Galerkin methods for compressible/supersonic flows.

Development of a new expansion basis: Singular Stokes eigenfunctions.

Work featured on the covers of: *Physics Today* (March 1993); *Parity* (Japanese - November 1993); *Scientific Computing & Automation* (June 1994), MHPCC’97 (November 1997), ACCESS/NCSA (November 1998), Cover of Book on “Recent Advances in DNS and LES” (Kluwer, 1999); work featured in *Science* and reports in *New Scientist*, *Industrial Physicist*, and several popular magazines/newspapers around the world; *Aerospace America* 2001; *NCSA Access* 2002 and on *Power Wall* in SC’02, cover of *Phys. Rev. Lett.* (2004); *NCSA Access* 2006.

PUBLICATION LIST

(* indicates a PhD student supervised by George Karniadakis)

A. Books/Chapters in Books/General

1. G.E. Karniadakis, A. Beskok* and N. Aluru, “Microflows and Nanoflows: Fundamentals and Simulation, Springer 2005.
2. G.E. Karniadakis and R.M. Kirby*, “Parallel Scientific Computing in C++ and MPI”, Cambridge University Press, March 2003.
3. G.E. Karniadakis and A. Beskok*, “Microflows: Fundamentals and Simulation”, Springer, 2001. (first textbook/monograph in this field).
4. G.E. Karniadakis & S.J. Sherwin*, “Spectral/hp Element Methods for CFD,” Oxford University Press, New York, 1999. (first monograph in this field); second edition, Oxford, 2005.
5. I.V. Pivkin*, B. Caswell and G.E. Karniadakis, “Dissipative Particle Dynamics”, Chapter 2 in *Reviews in Computational Chemistry*, Vol. 27, edited by Kenny B. Lipkowitz, John Wiley & Sons, Inc., 2011.

6. N. Aluru and G.E. Karniadakis, "Numerical simulation of microflows and nanoflows", Chapter 3 in *Micro/Nano Technology Systems for Biomedical Applications*, edited by C.-M. Ho, Oxford University Press, 2010.
7. X. Wan and G.E. Karniadakis, "Adaptive numerical solutions of stochastic differential equations", *Computer Mathematics & its Applications (1994-2005)*, pp. 561-573, 2006.
8. "Spectral Interpolation in Non-Orthogonal Domains: Algorithms and Applications", special issue of *Journal of Engineering Mathematics*, guest editor (co-editor: Jan Hesthaven).
9. "Uncertainty Quantification in Simulation Science", special issue of *Journal of Computational Physics*, vol. 217, no. 1, 2006, guest editor (co-editor: James Glimm).
10. V. Symeonidis*, G.E. Karniadakis and B. Caswell, "Simulation of λ -phage DNA in microchannels using dissipative particle dynamics, *Bulletin of the Polish Academy of Sciences*, vol. 53 (4), pp. 395-403, 2005.
11. D. Xiu* and G.E. Karniadakis, "Generalized polynomial chaos: Performance evaluation and applications", chapter in *Dynamic Data Driven Applications Simulations (DDDAS)*, editor F. Darema, Kluwer, 2004.
12. R.M. Kirby* and G.E. Karniadakis, "Spectral Element and *hp* Methods", *Encyclopedia of Computational Mechanics*, John Wiley & Sons Ltd, 2004.
13. G.E. Karniadakis and K.-S. Choi, "Mechanisms on transverse motions in turbulent wall flows", *Annual Review of Fluid Mechanics*, vol. 35, 45-62, 2003.
14. G.E. Karniadakis, "Quantifying Uncertainty in CFD", Managing Editor of special issue of *J. Fluids Engineering*, March 2002.
15. R.M. Kirby* and G.E. Karniadakis, "Under-Resolution and Diagnostics in Turbulent Simulations of Complex-Geometry Flows", *Turbulent Flow Computations*, Kluwer, 2002.
16. R.M. Kirby*, G.E. Karniadakis, O. Mikulchenko and K. Mayaram, "Integrated Simulation for MEMS: Coupling Flow-Structure-Thermal-Electrical Domains", Chapter 5, *The MEMS Handbook*, CRC Press.
17. "Spectral, Spectral Element and *hp* Methods for CFD", guest editor of *C.M.A.M.E.*, (co-editors: M. Ainsworth and C. Bernardi), vol. 175.
18. "Discontinuous Galerkin Methods: Theory Computation and Applications", (editors: B. Cockburn, G.E. Karniadakis and C.-W. Shu), Springer-Verlag, February 2000.
19. G.E. Karniadakis and R.D. Henderson*, "Spectral Element Methods for Incompressible Flows", chapter 29 in *Handbook of Fluid Dynamics*, edited by R.W. Johnson, CRC Press, 1998.
20. G.E. Karniadakis, "Towards a numerical error bar in CFD," Editorial Article, *J. Fluids Engineering*, March 1995.
21. G.E. Karniadakis & S.A. Orszag, "Nodes, Modes, and Flow Codes," *Physics Today*, p. 34-42, March 1993.
22. G.E. Karniadakis & S.A. Orszag, "Some novel aspects of spectral methods," *Algorithmic Trends in Computational Fluid Dynamics*, eds. M.Y. Hussaini, A. Kumar, M.D. Salas, p. 245, Springer-Verlag, 1993.
23. G.E. Karniadakis, S.A. Orszag, E.M. Ronquist and A.T. Patera, "Spectral element and lattice gas methods for incompressible fluid dynamics," chapter 8 in *Incompressible Fluid Dynamics*, eds. M.D. Gunzburger and R.A. Nicolaides, Cambridge University Press, 1993.
24. R.D. Henderson* & G.E. Karniadakis, "A hybrid spectral element-finite difference method for parallel computers," p. 221, *Unstructured Scientific Computation on Scalable Multi-Processors*, ed. P. Mehrotra, J. Saltz, and R. Voigt, M.I.T. Press, 1992.
25. G.E. Karniadakis & S.A. Orszag, "Parallel spectral computations of complex engineering flows," chapter 9 in *Supercomputing in Engineering Analysis, New Generation Computing*, ed. H. Adeli, 1990.

B. Articles in Refereed Journals

Stochastic PDEs/Uncertainty Quantification

1. D. Venturi and G.E. Karniadakis, “New evolution equations for the joint response-excitation probability density function of stochastic solutions to first-order nonlinear PDEs”, *J. Comp. Phys.*, vol. 231, pp. 7450-7474, 2012.
2. D. Venturi, T. Sapsis, H. Cho and G.E. Karniadakis, “A computable evolution equation for the joint response-excitation probability density function of stochastic dynamical systems”, *Proc. Roy. Soc. A*, vol. 468, pp. 759-783, 2012.
3. Z. Zhang*, M. Choi* and G.E. Karniadakis, “Error estimates for the ANOVA method with polynomial chaos interpolation: Tensor product functions”, *SIAM J. Sci. Comp.*, online, 2012.
4. D. Venturi, M. Choi* and G.E. Karniadakis, “Supercritical quasi-continuum states in stochastic Rayleigh-Bernard convection”, *Int. J. Heat & Mass Transfer*, vol. 55, pp. 3732-3743, 2012.
5. X. Yang*, M. Choi* and G. Lin and G.E. Karniadakis, “Adaptive ANOVA decomposition of stochastic incompressible and compressible flows”, *J. Comp. Phys.*, vol. 231, pp. 1587-1614, 2012.
6. D. Venturi and G. E. Karniadakis, “Differential constraints for the probability density function of stochastic solutions to the wave equation”, *International Journal for Uncertainty Quantification*, 2011, 2, pp. 131-150.
7. P. Prempraneerach, F. Hover, M. Triantafyllou, and G.E. Karniadakis, “Uncertainty quantification in simulations of power systems: Multi-element polynomial chaos methods”, *Reliability Engineering and System Safety*, vol. 95, pp. 632-646, 2010.
8. J. Foo* and G.E. Karniadakis, “Multi-element probabilistic collocation method in high dimensions”, *J. Comp. Phys.*, vol. 229(5), pp. 1536-1557, 2010.
9. D. Venturi, X. Wan and G.E. Karniadakis, “Stochastic bifurcation analysis of Rayleigh-Benard convection”, *J. Fluid Mech.*, vol. 650, pp. 391-413, 2010.
10. G. Lin* and G.E. Karniadakis, “Sensitivity analysis and stochastic simulations of non-equilibrium plasma flow”, *Int. J. Num. Meth. Engng.*, vol. 80, pp. 738-766, 2009.
11. X. Wan*, B. Rozovskii and G.E. Karniadakis, “A stochastic modeling methodology based on weighted Wiener chaos and Malliavin calculus”, *Proc. Nat. Acad. Sciences*, vol. 106, no. 34, pp. 14189-14194, 2009.
12. G. Lin*, C.-H. Su and G.E. Karniadakis, “Stochastic modeling of random roughness in shock scattering problems: Theory and simulations”, *Computer Methods in Applied Mechanics and Engineering*, vol. 197, pp. 3420-3434, 2008.
13. X. Wan* and G.E. Karniadakis, “Error control in multi-element generalized polynomial chaos method for elliptic problems with random coefficients”, *Communication in Computational Physics*, vol. 5, pp. 793-820, 2009.
14. X. Wan* and G.E. Karniadakis, “Solving elliptic problems with non-Gaussian spatially-dependent random coefficients: algorithms, error analysis and applications”, *Comput. Methods Appl. Mech. Engr.*, vol. 198, pp. 1985-1995, 2009. .
15. J. Foo*, X. Wan* and G.E. Karniadakis, “The multi-element probabilistic collocation method: error analysis and simulation”, *J. Comp. Phys.*, vol. 227, pp. 9572-9595, 2008.
16. D. Venturi, X. Wan and G.E. Karniadakis, “Stochastic low dimensional modeling of random laminar wake past a circular cylinder”, *Journal of Fluid Mechanics*, vol. 606, pp. 339-367, 2008.
17. G. Lin, X. Wan, C.-H. Su and G.E. Karniadakis, “Stochastic fluid mechanics”, *IEEE Computing in Science and Engineering (CiSE)*, vol. 9, pp. 21-29, 2007.
18. G. Lin*, C.-H. Su and G.E. Karniadakis, “Random roughness enhances lift in supersonic flow”, *Phys. Rev. Lett.*, vol. 99, (10), 104501, 2007.

19. J. Foo*, Z. Yosibash and G.E. Karniadakis, "Stochastic simulation of riser-sections with uncertain measured pressure loads and/or uncertain material properties", *Comput. Methods Appl. Mech. Engr.*, vol. 196, pp. 4250-4271, 2007.
20. G. Lin*, C.-H. Su and G.E. Karniadakis, "Predicting shock dynamics in the presence of uncertainties", *J. Comp. Phys.*, vol. 217, pp. 260-276, 2006.
21. X. Wan* and G.E. Karniadakis, "Stochastic heat transfer enhancement in a grooved channel", *J. Fluid Mech.*, vol. 565, pp. 255-278, 2006.
22. X. Wan* and G.E. Karniadakis, "Beyond Wiener-Askey expansions: Handling arbitrary PDFs", *Journal of Scientific Computing*, vol. 27, pp. 455-464, 2006.
23. X. Wan* and G.E. Karniadakis, "Multi-element generalized polynomial chaos for arbitrary probability measures", *SIAM Journal of Scientific Computing*, vol. 28(3), pp. 901-928, 2006.
24. X. Wan* and G.E. Karniadakis, "Long-term behavior of polynomial chaos in stochastic flow simulations", *Comput. Methods Appl. Mech. Engrg.*, vol. 195, pp. 5528-5596, 2006.
25. H. Gunes, S. Sirisup* and G.E. Karniadakis, "Gappy data: To Krig or not to Krig?", *Journal of Computational Physics*, vol. 212(1), pp. 358-382, 2006.
26. G. Lin*, L. Grinberg and G.E. Karniadakis, "Numerical studies of the stochastic Korteweg de Vries equation", *Journal of Computational Physics*, vol. 213(2), pp. 676-703, 2006.
27. X. Wan* and G.E. Karniadakis, "An adaptive multi-element generalized polynomial chaos method for stochastic differential equations", *J. Comp. Phys.*, vol. 209(2), pp. 617-642, 2005.
28. X. Wan*, D. Xiu* and G.E. Karniadakis, "Stochastic solutions for the two-dimensional advection-diffusion equation", *SIAM J. Sci. Comput.*, vol. 26(2), pp. 578-590, 2004.
29. D. Lucor* and G.E. Karniadakis, "Adaptive generalized polynomial chaos for nonlinear random oscillators", *SIAM J. Sci. Comput.*, vol. 26(2), pp. 720-735, 2004.
30. D. Xiu* and G.E. Karniadakis, "Supersensitivity due to uncertain boundary conditions", *Int. J. Num. Meth. Eng.*, vol. 61, pp. 2114-2138, 2004.
31. G. Lin*, C.-H. Su and G.E. Karniadakis, "The stochastic piston problem", *Proc. National Academy of Sciences*, vol. 101, pp. 15840-15845, 2004.
32. D. Lucor* and G.E. Karniadakis, "Noisy inflows cause a shedding-mode switching in flow past an oscillating cylinder", *Phys. Rev. Lett.*, vol. 92(15), 154501, 2004. (featured on the cover).
33. D. Venturi and G.E. Karniadakis, "Gappy data and reconstruction procedures for flow past cylinder", *J. Fluid Mech.*, vol. 519, pp. 315-336, 2004.
34. D. Lucor*, C.-H. Su and G.E. Karniadakis, "Generalized polynomial chaos and random oscillators", *Int. J. Num. Meth. Eng.*, vol. 60(3), pp. 571-596, 2004.
35. D. Lucor* and G.E. Karniadakis, "Predictability and uncertainty in flow-structure interactions", *European Journal of Mechanics B/Fluids*, vol. 23, pp. 41-49, 2004.
36. D. Lucor*, D. Xiu*, C.-H. Su and G.E. Karniadakis, "Predictability and uncertainty in CFD", *Int. J. Num. Meth. Fluids*, vol. 43(5), pp. 485-505, 2003.
37. D. Xiu* and G.E. Karniadakis, "Modeling uncertainty in flow simulations via generalized polynomial chaos", *J. Comp. Phys.*, vol. 187, pp. 137-167, 2003.
38. D. Xiu* and G.E. Karniadakis, "A new stochastic approach to transient heat conduction modeling with uncertainty", *Int. J. Heat & Mass Transfer*, vol. 46, pp. 4681-4693, 2003.

39. D. Xiu* and G.E. Karniadakis, “Modeling uncertainty in flow simulations via Generalized Polynomial Chaos”, *J. Comp. Phys.*, vol. 187, pp. 137-167, 2003.
40. D. Xiu* and G.E. Karniadakis, “The Wiener-Askey Polynomial Chaos for stochastic differential equations”, *SIAM Journal of Scientific Computing*, vol 24, no. 2, pp. 619-644, 2002.
41. D. Xiu*, D. Lucor*, C.-H. Su and G.E. Karniadakis, “Stochastic modeling of flow-structure interactions using Generalized Polynomial Chaos”, *J. Fluids Engineering*, vol. 124, pp. 51-59, 2002.
42. M. Jardak*, C.-H. Su and G.E. Karniadakis, “Spectral Polynomial Chaos solutions of the stochastic advection equation”, *J. Sci. Comp.*, vol. 17, pp. 319-338, 2002.
43. D. Xiu* and G.E. Karniadakis, “Modeling uncertainty in steady state diffusion problems via generalized polynomial chaos”, *Comput. Methods Appl. Mech. Engrg.*, vol. 191, pp. 4927-4948, 2002.

Spectral Element and DG Methods

1. B. Yildirim* and G.E. Karniadakis, “A hybrid spectral/DG method for solving the phase-averaged ocean wave equation: Algorithm and validation”, *J. Comp. Phys.*, vol. 231, pp. 4921-4953, 2012.
2. Y. Yue*, H. Baek*, M.L. Bittencourt and G.E. Karniadakis, “Mixed spectral/hp element formulation for nonlinear elasticity”, *Computer Methods in Applied Mechanics and Engineering*, vol. 213-216, pp. 42-57, 2012.
3. H. Baek* and G.E. Karniadakis, “Sub-iteration leads to accuracy and stability enhancements of semi-implicit schemes for the Navier-Stokes equations”, *J. Comp. Phys.*, vol. 230, pp. 4384-4402, 2011.
4. X. Luo*, A. Beskok and G.E. Karniadakis, “Modeling electrokinetic flows by the smoothed profile method”, *J. Comp. Phys.*, vol. 229, pp. 3828-3847, 2010.
5. X. Luo*, M. Maxey and G.E. Karniadakis, “Smoothed Profile Method for Particulate Flows: Error Analysis and Simulations”, *J. Comp. Phys.*, vol. 228, pp. 1750-1769, 2009.
6. L. Grinberg* and G.E. Karniadakis, “Hierarchical spectral basis and Galerkin formulation using barycentric quadrature grids in triangular elements”, *Journal of Engineering Mathematics*, 56(3), 289-306, 2007.
7. R.M. Kirby*, Z. Yosibash and G.E. Karniadakis, “Towards stable coupling methods for high-order discretization of fluid-structure interaction: Algorithms and observations”, *J. Comp. Phys.*, vol. 223, pp. 489-518, 2007.
8. X. Wan* and G.E. Karniadakis, “A sharp error estimate for the fast Gauss transform”, *J. Comp. Phys.*, vol. 219, pp. 7-12, 2006.
9. G. Lin* and G.E. Karniadakis, “A discontinuous Galerkin method for two-temperature plasmas”, *Comput. Methods Appl. Mech. Engrg.*, vol. 195, pp. 3504-3527, 2006.
10. R.M. Kirby* and G.E. Karniadakis, “Selecting the numerical flux in discontinuous Galerkin methods for diffusion problems”, *Journal of Scientific Computing*, vols. 22-23 (1-3), pp. 385-411, 2005.
11. D. Xiu*, S.J. Sherwin, S. Dong and G.E. Karniadakis, “Strong and auxiliary forms of the semi-Lagrangian method for incompressible flows”, *Journal of Scientific Computing*, vol. 25, pp 323-346, 2005.
12. S. Dong, D. Liu*, M.R. Maxey and G.E. Karniadakis, “Spectral distributed Lagrange multiplier method: Algorithm and benchmark tests”, *Journal of Computational Physics*, vol. 195, pp. 695-717, 2004.
13. R.M. Kirby* and G.E. Karniadakis, “De-aliasing on non-uniform grids: algorithms and applications”, *J. Comp. Phys.*, vol. 191, pp. 249-264, 2003.
14. D. Liu*, M. Maxey and G.E. Karniadakis, “A fast method for particulate microflows”, *J. Microelectromechanical Systems*, vol. 11(6), pp. 691-702, 2002.

15. R.M. Kirby* and G.E. Karniadakis, "Coarse resolution turbulence simulations using SVV-LES", *J. Fluids Eng.*, vol. 177, p. 133, 2002.
16. J.Xu*, D. Xiu* and G.E. Karniadakis, "A Semi-Lagrangian method for turbulence simulations using mixed spectral discretizations", *J. Sci. Comp.*, vol. 17, pp. 585-597, 2002.
17. C. Evangelinos*, D. Lucor*, C.-H. Su and G.E. Karniadakis, "Flow-induced vibrations of non-linear cables, Part I: Models and Algorithms", *Int. J. Num. Meth. Engin.*, vol. 55, pp. 535-556, 2002.
18. R.M. Kirby*, G.E. Karniadakis, O. Mikulchenko and K. Mayaram, "An integrated simulator for coupled domain problems in MEMS", *J. Microelectromechanical Systems*, vol. 10(3), pp. 379-399, 2001.
19. D. Xiu* and G.E. Karniadakis, "A semi-Lagrangian high-order method for Navier-Stokes equations", *J. Comp. Phys.*, vol. 172, pp. 658-684, 2001.
20. G.S. Karamanos and G.E. Karniadakis, "A spectral vanishing viscosity method for large-eddy simulations", *J. Comp. Phys.*, vol. 162, pp. 22-50, 2000.
21. J. Trujillo* and G.E. Karniadakis, "A penalty method for the vorticity-velocity formulation", *J. Comp. Phys.*, vol. 149, pp. 32-58, 1999.
22. R.M. Kirby*, T.C. Warburton*, I. Lomtev* and G.E. Karniadakis, "A discontinuous Galerkin spectral/hp method on hybrid grids", *J. Appl. Num. Math.*, vol. 33, pp. 393-405, 1999.
23. I. Lomtev*, R.M. Kirby*, and G.E. Karniadakis, "A discontinuous Galerkin ALE method for compressible viscous flows in moving domains", *J. Comp. Phys.*, vol. 155, pp. 128-159, 1999.
24. T.C. Warburton* and G.E. Karniadakis, "A discontinuous Galerkin method for the viscous MHD equations", *J. Comp. Phys.*, vol. 152, pp. 608-641, 1999.
25. T.C. Warburton*, I. Lomtev*, Y. Du*, S.J. Sherwin*, and G.E. Karniadakis, "Galerkin and discontinuous Galerkin spectral/hp methods", *Comp. Meth. Appl. Mech. Engr.*, vol. 175, pp. 343-359, 1999.
26. T.C. Warburton*, S.J. Sherwin* and G.E. Karniadakis, "Basis functions for triangular and quadrilateral high-order elements", *SIAM J. Scientific Computing*, vol. 20(5), pp. 1671-1695, 1999.
27. I. Lomtev*, and G.E. Karniadakis, "A discontinuous Galerkin method for the Navier-Stokes equations", *Int. J. Num. Meth. Fluids*, vol. 29, pp. 587-603, 1999.
28. I. Lomtev*, C.B. Quillen and G.E. Karniadakis, "Spectral/hp methods for viscous compressible flows on unstructured 2D meshes", *J. Comp. Phys.*, vol. 144, pp. 325-357, 1998.
29. S.J. Sherwin*, T.C. Warburton*, and G.E. Karniadakis, "Spectral/hp methods for elliptic problems on hybrid grids", *Contemporary Mathematics*, vol. 218, p. 191-215, 1998.
30. S.J. Sherwin* and G.E. Karniadakis, "Tetrahedral hp finite elements: Algorithms and flow simulations," *J. Comp. Phys.*, vol. 124, p. 14, 1996.
31. D. Pathria & G.E. Karniadakis, "Spectral element methods for elliptic problems in non-smooth domains," *J. Comp. Phys.*, vol. 122, p. 83, 1995.
32. S.J. Sherwin* and G.E. Karniadakis, "A triangular spectral element method; Applications to the incompressible Navier-Stokes equations," *C.M.A.M.E.*, vol. 123, p. 189, 1995.
33. S.J. Sherwin* and G.E. Karniadakis, "A new triangular and tetrahedral basis for high-order finite element methods," *Int. J. Num. Meth. Eng.*, vol. 38, p. 3775, 1995.
34. R.D. Henderson* and G.E. Karniadakis, "Unstructured spectral element methods for simulation of turbulent flows," *J. Comp. Phys.*, vol. 122 p. 191, 1995.

35. J. Giannakouros* and G.E. Karniadakis, "A spectral element-FCT method for the compressible Euler equations," *J. Comp. Phys.*, vol 115, p. 65, 1994.
36. J. Giannakouros*, D. Sidilkover & G.E. Karniadakis, "Spectral element-FCT method for the one- and two-dimensional Euler equations," *C.M.A.M.E.*, vol. 116, p. 113, 1994; also in *ICOSAHOM*, p. 113, (eds. C. Bernardi & Y. Maday), North Holland, 1992.
37. D. Sidilkover & G.E. Karniadakis, "Non-oscillatory spectral element Chebyshev method for shock wave calculations," *Proc. 5th Conf. on Domain Decomposition Methods*, SIAM, 1991, also in *J. Comp. Phys.*, vol. 107, p. 10, 1993.
38. G.E. Karniadakis, M. Israeli & S.A. Orszag, "High-order splitting methods for the incompressible Navier-Stokes equations," *J. Comp. Phys.*, vol. 97, p.414, 1991.
39. R.D. Henderson* & G.E. Karniadakis, "Hybrid spectral element-low order methods for incompressible flows," *J. Sci. Comp.*, vol. 6, No. 2, p. 79, 1991.
40. J. Giannakouros* & G.E. Karniadakis, "Spectral element-FCT method for scalar hyperbolic laws," *Proc. 3rd Int. Conf. on Hyperb. Problems*, vol. 1, p. 446, 1990 (also in *Int. J. Num. Meth. Fluids*, 14, p.707, 1992).
41. G.E. Karniadakis, "Spectral element-Fourier methods for incompressible turbulent flows," *C.M.A.M.E.*, vol. 80, p. 362, 1990. (also in *Proc. ICOSAHOM'89 Conf.*, Como, 1989).
42. A.G. Tomboulides*, M. Israeli & G.E. Karniadakis, "Efficient removal of boundary- divergence errors in time-splitting methods," *J. Sci. Comp.*, vol. 4, p. 291, 1989.
43. G.E. Karniadakis, "Spectral element simulations of laminar and turbulent flows in complex geometries," *Appl. Num. Math.*, vol. 6, p. 85, 1989.
44. N.K. Ghaddar, G.E. Karniadakis & A.T. Patera, "A conservative isoparametric spectral element method for forced convection: Application to fully developed flow in periodic geometries," *Num. Heat Transfer*, vol., 9, p.277, 1986.

Biomedical/Multiscale/Microfluidic Modeling

1. X. Li, B. Caswell and G.E. Karniadakis, "Effect of chain chirality on the self-assembly of sickle hemoglobin", *Biophys. J.*, vol. 103, pp. 1130-1140, 2012.
2. X. Li, A. Popel and G.E. Karniadakis, "Blood-plasma separation in Y-shaped bifurcating microfluidic channels: A dissipative particle dynamics simulation study", *Physical Biology*, to appear, 2012.
3. H. Lei* and G.E. Karniadakis, "Predicting the morphology of sickle red blood cells using coarse-grained models of intracellular aligned hemoglobin polymers", *Soft Matter*, vol. 8, p. 4507-4516, 2012.
4. H. Lei* and G.E. Karniadakis, "Quantifying the rheological and hemodynamic characteristics of sickle cell anemia", *Biophysical Journal*, vol. 102, pp. 185-194, 2012.
5. D. Fedosov*, B. Caswell, G. Karniadakis, "Wall shear stress-based method for adhesive dynamics of red blood cells in malaria", *Biophysical Journal*, vol. 100, pp. 2084-2093, 2011.
6. D. Fedosov*, H. Lei*, B. Caswell, S. Suresh and G.E. Karniadakis, "Multiscale modeling of red blood cell mechanics and blood flow in malaria", *PLoS Computational Biology*, vol. 7 (12), pp. 1-13, 2011.
7. D. Fedosov*, W. Pan*, B. Caswell, G. Gompper and G.E. Karniadakis, "Predicting human blood viscosity in silico", *Proc. Nat. Acad. Sciences*, vol. 108, pp. 11772-11777, 2011.
8. W. Pan*, D. Fedosov*, B. Caswell, and G.E. Karniadakis, "Predicting dynamics and rheology of blood flow: A comparative study of multiscale and low-dimensional models of red blood cells", *Microvascular Research*, vol. 82, pp. 163-170, 2011.

9. H. Lei*, D. Fedosov* and G.E. Karniadakis, “Time-dependent and outflow boundary conditions for Dissipative Particle Dynamics”, *J. Comp. Phys.*, vol. 230, pp. 3765-3779, 2011.
10. M. Arienti, W. Pan*, X. Li, and G.E. Karniadakis, “Many-body dissipative particle dynamics simulation of liquid/vapor and liquid/solid interactions”, *J. Chem. Phys.*, vol. 134, p. 204114, 2011.
11. D. Fedosov*, B. Caswell, S. Suresh and G.E. Karniadakis, “Quantifying the biophysical characteristics of *Plasmodium-falciparum*-parasitized red blood cells in microcirculation, *Proc. Nat. Acad. Sciences*, vol. 108, pp. 35-39, 2011.
12. D. Quinn, I. Pivkin, S.Y. Yong, K.-H. Chiam, M. Dao, G.E. Karniadakis and S. Suresh, “Combined simulation and experimental study of large deformation of red blood cells in microfluidic systems”, *Annals of Biomedical Engineering*, vol. 39(3), pp. 1041-1050, 2011.
13. T. Anor, L. Grinberg*, H. Baek, M. Jayaraman, J.R. Madsen and G.E. Karniadakis, “Modeling of blood flow in arterial trees”, *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, vol. 2, pp. 612-623, 2010.
14. L. Grinberg*, E. Cheever*, T. Anor, J.R. Madsen and G.E. Karniadakis, “Modeling blood flow circulation in intracranial arterial networks: A comparative 3D/1D simulation study”, *Annals of Biomedical Engineering*, vol. 39, pp. 297-309, 2010.
15. H. Baek*, M.V. Jayaraman, P.D. Richardson and G.E. Karniadakis, “Flow instability and wall shear stress variation in intracranial aneurysms”, *J. of the Royal Society Inteface*, vol. 7, pp. 967-988, 2010.
16. D. Fedosov*, B. Caswell, A. Popel and G.E. Karniadakis, “Blood flow and cell-free layer in microvessels”, *Microcirculation*, vol. 17 (8), pp. 615-628, 2010.
17. L. Grinberg* and G.E. Karniadakis, “Extrapolation-based acceleration of iterative solvers: Application to simulation of 3D flows”, *Commun. Comput. Phys.*, vol. 9, pp. 607-626, 2011.
18. W. Pan*, B. Caswell and G.E. Karniadakis, “A low-dimensional model for the red blood cell”, *Soft Matter*, vol. 6, pp. 4366-4376, 2010.
19. D. Fedosov*, B. Caswell and G.E. Karniadakis, “Systematic coarse-graining of spectrin-level red blood cell models, *Computer Methods in Applied Mechanics and Engineering*, vol. 199, pp. 1937-1948, 2010.
20. D. Fedosov*, B. Caswell and G.E. Karniadakis, “A multiscale red blood cell model with accurate mechanics, rheology and dynamics, *Biophysical Journal*, vol. 98, pp. 1-11, 2010.
21. H. Lei*, B. Caswell and G.E. Karniadakis, “Direct construction of mesoscopic models from microscopic simulations”, *Phys. Rev. E*, vol. 81(2), 026704, 2010.
22. W. Pan*, B. Caswell and G.E. Karniadakis, “Rheology, Microstructure and Migration in Brownian Colloidal Suspensions”, *Langmuir*, vol. 26(1), pp. 133-142, 2010.
23. H. Baek*, M.V. Jayaraman and G.E. Karniadakis, “Wall shear stress and pressure distribution on aneurysms and infundibulae in the posterior communicating artery bifurcation”, *Annals of Biomedical Engineering*, Vol. 37, No. 12, pp. 2469-2487, 2009.
24. I. Pivkin*, P. Richardson and G.E. Karniadakis, “Effect of red blood cells on platelet aggregation”, *IEEE Engineering in Medicine & Biology Magazine*, vol. 28(2), 32-37, March-April 2009.
25. L. Grinberg*, A. Yakhot and G.E. Karniadakis, “Analyzing transient turbulence in a stenosed artery by Proper Orthogonal Decomposition”, *Annals of Biomedical Engineering*, vol. 37(1), pp. 2200-2217, 2009.
26. X. Li, I. Pivkin*, H. Liang and G.E. Karniadakis, “Shape transformations of membrane vesicles from amphiphilic triblock copolymers: A Dissipative Particle Dynamics simulation study”, *Macromolecules*, vol. 42, pp. 3195-3200, 2009.
27. J. Foo*, S. Sindi and G.E. Karniadakis, “Multi-element probabilistic collocation for sensitivity analysis in cellular signaling networks”, *IET Systems Biology*, vol. 3 (4), pp. 239-254, 2009.

28. D. Fedosov* and G.E. Karniadakis, “Triple-Decker: Interfacing atomistic-mesosopic-continuum flow regimes”, *J. Comp. Phys.*, vol. 228, pp. 1157-1171, 2009.
29. L. Grinberg*, T. Anor, J. R. Madsen and G. E. Karniadakis, “Simulation of the Human Intracranial Arterial Tree, *Philosophical Transactions of the Royal Society A*”, vol. 367, pp. 2371-2386, 2009.
30. W. Pan*, D.A. Fedosov*, B. Caswell and G.E. Karniadakis, “Hydrodynamic interactions for single dissipative-particle-dynamics particles and their clusters and filaments,” *Phys. Rev. E*, vol. 78, 046706, 2008.
31. W. Pan*, I.V. Pivkin* and G.E. Karniadakis, “Single-particle hydrodynamics in DPD: A new formulation,” *EuroPhysics Letters*, vol. 84, 10012, 2008.
32. L. Grinberg* and G.E. Karniadakis, “Outflow boundary conditions for arterial networks with multiple outlets”, *Annals of Biomedical Engineering*, vol. 36 (9), pp. 1496-1514, 2008.
33. L. Grinberg*, T. Anor, J.R. Madsen, A. Yakhot and G.E. Karniadakis, “Large-Scale Simulation of the Human Arterial Tree”, *Clinical and Experimental Pharmacology and Physiology*, published on-line July 2008.
34. I. Pivkin* and G.E. Karniadakis, “Accurate coarse-grained modeling of red blood cells”, *Phys. Rev. Let.*, vol. 101(11), 118105, 2008.
35. D. Fedosov*, G.E. Karniadakis and B. Caswell, “Dissipative particle dynamics simulation of depletion layer and polymer migration in micro- and nanochannels for dilute polymer solutions”, *J. Chem. Phys.*, vol. 128, pp. 144903-14, 2008.
36. D. Fedosov*, I. Pivkin* and G.E. Karniadakis, “Velocity limit in DPD simulations of wall-bounded flows”, *J. Comp. Phys.*, vol. 227, pp. 2540-2559, 2008.
37. A. Yakhot, T. Amor and G.E. Karniadakis, “A reconstruction method for gappy and noisy arterial flow data”, *IEEE Transactions on Medical Imaging*, vol. 26, No. 12, pp. 1681-1697, 2007.
38. I. Pivkin*, P.D. Richardson and G.E. Karniadakis, “Blood flow velocity effects and role of activation delay time on growth and form of platelet thrombi”, *Proc. Nat. Acad. Sci., USA*, vol. 103, no. 46, 17164, 2006.
39. P.D. Richardson, I. Pivkin*, G.E. Karniadakis, and D.H. Laidlaw “Blood flow at arterial branches: Complexities to resolve at the angioplasty suite”, *Lecture Notes in Computer Science*, vol. 3993, pp. 538-545, 2006.
40. V. Symeonidis*, G.E. Karniadakis and B. Caswell, “Schmidt number effects in dissipative particle dynamics simulation of polymers”, *J. Chem. Phys.*, vol. 125, 184902, 2006.
41. I. Pivkin* and G.E. Karniadakis, “Controlling density fluctuations in wall-bounded dissipative particle dynamics systems”, *Phys. Rev. Let.*, vol 96 (20), 206001, 2006.
42. V. Symeonidis* and G.E. Karniadakis, “A family of time-staggered schemes for integrating hybrid DPD models for polymers: Algorithms and applications”, *J. Comp. Phys.*, vol. 218, pp. 82-101, 2006.
43. I. Pivkin* and G.E. Karniadakis, “Coarse-graining limits in open and wall-bounded DPD systems”, *J. Chem. Phys.*, vol. 124, 184101, 2006.
44. E. Keaveny, I. Pivkin*, M.R. Maxey and G.E. Karniadakis, “A comparative study between dissipative particle dynamics and molecular dynamics for simple- and complex-geometry flows”, *J. Chem. Phys.*, vol. 123, p. 104-107, 2005.
45. V. Symeonidis*, G.E. Karniadakis and B. Caswell, “Dissipative particle dynamics simulations of polymer chains: Scaling laws and shearing response compared to DNA experiments”, *Phys. Rev. Lett.*, vol 95, 076001, 2005.
46. I. Pivkin*, P.D. Richardson, D.H. Laidlaw and G.E. Karniadakis, “Combined effects of pulsatile flow and dynamic curvature on wall shear stress in a coronary artery bifurcation model”, *J. Biomechanics*, vol. 38, pp. 1283-1290, 2005.
47. I. Pivkin* and G.E. Karniadakis, “A new method to impose no-slip boundary conditions in dissipative particle dynamics”, *J. Comp. Phys.*, vol. 207, pp. 114-128, 2005.

48. V. Symeonidis*, G.E. Karniadakis and B. Caswell, "A seamless approach to multiscale complex fluid simulation", *Computing in Science & Engineering*, pp. 39-46, May/June 2005.
49. A. Beskok* and G.E. Karniadakis, "A model for flows in channels, pipes and ducts at micro- and nano-scales", *J. Microscale Thermophysical Engineering*, vol. 3, pp. 43-77, 1999.
50. A. Beskok*, G.E. Karniadakis and W. Trimmer, "Rarefaction and compressibility effects in gas microflows", *J. Fluids Engineering*, vol. 118, p. 448, 1996.
51. S.J. Sherwin*, G.E. Karniadakis & S.A. Orszag, "Numerical simulation of the ion etching process," *J. Comp. Phys.*, vol. 110, p. 373, 1994.
52. A. Beskok* and G.E. Karniadakis, "Simulation of heat and momentum transfer in complex micro-geometries," *J. Thermophys. and Heat Transfer*, vol. 8, no. 4, p. 647, 1994.
53. M.K. Sharp, R. D. Kamm, A.H. Shapiro, E. Kimmel & G.E. Karniadakis, "Dispersion in a curved tube during oscillatory flow," *J. Fluid Mech.*, vol. 223, p. 537, 1991.
54. S.J. Sherwin*, E. Barough, G.E. Karniadakis & S.A. Orszag, "Modeling of multilayer etching processes," *J. of Vacuum Science and Technology*, vol. 11, p. 1310, 1993.

Fluid Mechanics

1. R. Bourguet, Y. Modarres-Sadeghi, G.E. Karniadakis and M.S. Triantafyllou, "Wake-body resonance of long flexible structures is dominated by counter-clockwise orbits", *Phys. Rev. Lett.*, vol. 107, 134502, 2011.
2. R. Bourguet, G.E. Karniadakis and M.S. Triantafyllou, "Lock-in of the vortex-induced vibrations of a long tensioned beam in shear flow", *J. Fluids & Structures*, vol. 27, pp. 838-847, 2011.
3. R. Bourguet, G.E. Karniadakis and M.S. Triantafyllou, "Vortex-induced vibrations of a long flexible cylinder in shear flow", *J. Fluid Mech.*, vol. 667, pp. 342-382, 2011.
4. H. Baek* and G.E. Karniadakis, Suppressing vortex-induced vibrations via passive means, *J. Fluids & Structures*, vol. 25(5), pp. 848-866, 2009.
5. D. Liu*, E. Keaveny, M.R. Maxey and G.E. Karniadakis, "Force coupling method for flows with ellipsoidal particles", *J. Comp. Phys.*, vol. 228, pp. 3559-3581, 2009.
6. S. Dong, G.S. Triantafyllou and G.E. Karniadakis, "Elimination of vortex streets in bluff-body flows", *Phys. Rev. Lett.*, vol 100, 204501, 2008.
7. J.M. Dahl, F.S. Hover, M.S. Triantafyllou, S. Dong and G.E. Karniadakis, "Resonant vibrations of bluff bodies cause multivortex shedding and high frequency forces", *Phys. Rev. Lett.*, vol 99, (14), 144503, 2007.
8. J. Xu*, S. Dong, M.R. Maxey and G.E. Karniadakis, "Turbulent drag reduction by constant near-wall forcing", *J. Fluid Mech.*, vol. 582, pp. 79-101, 2007.
9. E. Climent, K. Yeo, M.R. Maxey and G.E. Karniadakis, "Dynamic self-assembly of spinning particles", *J. Fluids Engin.*, vol. 129, pp. 379-387, 2007.
10. G.V. Papaioannou, D.K.P. Yue, M.S. Triantafyllou and G.E. Karniadakis, "Three-dimensionality effects in flow around two tandem cylinders", *J. Fluid Mech.*, vol. 558, pp. 387-413, 2006.
11. G.V. Papaioannou, D.K.P. Yue, M.S. Triantafyllou and G.E. Karniadakis, "Evidence of holes in the Arnoldi tongues in flow past two oscillating cylinders", *Phys. Rev. Lett.*, vol 96, 014501, 2006.
12. S. Dong, G.E. Karniadakis, A. Ekmekci and D. Rockwell, "A combined DNS-PIV study of the turbulent near-wake", *J. Fluid Mech.*, vol. 569, pp. 185-207, 2006.

13. D. Lucor*, J. Foo*, and G.E. Karniadakis, "Vortex mode selection of a rigid cylinder subject to VIV at low mass-damping", *Journal of Fluids & Structures*, vol. 20(4), pp. 483-503, 2005.
14. S. Dong and G.E. Karniadakis, "DNS of flow past a stationary and oscillating cylinder at $Re = 10000$ ", *Journal of Fluids & Structures*, vol. 20(4), pp. 519-531, 2005.
15. D. Liu*, M.R. Maxey and G.E. Karniadakis, "Simulations of dynamic self-assembly of paramagnetic microspheres in confined microgeometries", *Journal of Micromechanics and Microengineering*, vol. 15, pp. 2298-2308, 2005.
16. E. Climent, M.R. Maxey and G.E. Karniadakis, "Dynamics of self-assembled chaining in magnetorheological fluids", *Langmuir*, vol. 20(2), pp. 507-513, 2004.
17. D. Liu*, M.R. Maxey and G.E. Karniadakis, "Modeling and optimization of colloidal micro-pumps", *Journal of Micromechanics and Microengineering*, vol. 14, pp. 567-575, 2004. (Top 3% of downloads across all IOP journals.)
18. S. Sirisup*, G.E. Karniadakis, N. Saelim and D. Rockwell, "DNS and experiments of flow past a wired cylinder at low Reynolds number", *European Journal of Mechanics B/Fluids*, vol. 23, pp. 181-188, 2004.
19. D. Lucor* and G.E. Karniadakis, "Effects of Oblique inflow in vortex-induced vibrations", *Flow, Turbulence and Combustion*, vol. 71, pp. 375-389, 2003.
20. X. Ma*, V. Symeonidis* and G.E. Karniadakis, "A spectral vanishing viscosity method for stabilizing viscoelastic flows", *J. Non-Newtonian Fluid Mechanics*, vol. 115, pp. 125-155, 2003.
21. J. Xu*, S. Dong, M.R. Maxey and G.E. Karniadakis, "Direct numerical simulation of turbulent channel flow with bubbles", *Contemporary Mathematics*, vol. 329, pp. 347-354, 2003.
22. J. Xu*, M. Maxey and G.E. Karniadakis, "Numerical simulation of turbulent drag reduction using micro-bubbles", *J. Fluid Mech.*, vol. 468, pp. 271-281, 2002.
23. D. Lucor*, C. Evangelinos*, L. Imas and G.E. Karniadakis, "Flow-induced vibrations of non-linear cables, Part II: Simulations", *Int. J. Num. Meth. Engin.*, vol. 55, pp. 557-571, 2002.
24. Y. Du*, V. Symeonidis* and G.E. Karniadakis, "Drag reduction in wall-bounded turbulence via a transverse traveling wave", *J. Fluid Mech.*, vol. 457, pp. 1-34, 2002.
25. D. Lucor*, L. Imas and G.E. Karniadakis, "Vortex dislocations and force distribution of long flexible cylinders subjected to sheared flows", *J. Fluids & Structures*, vol. 15, pp. 641-650, 2001.
26. Y. Du* and G.E. Karniadakis, "Suppressing wall turbulence by means of a transverse traveling wave", *Science*, vol. 288, pp. 1230-1234, 2000.
27. X. Ma*, G.-S. Karamanos* and G.E. Karniadakis, "Dynamics and low-dimensionality in the turbulent near-wake", *J. Fluid Mech.*, vol. 410, pp. 29-65, 2000.
28. C. Evangelinos*, D. Lucor* and G.E. Karniadakis, "DNS-derived force distribution on flexible cylinders subject to vortex-induced vibration", *J. Fluid Mech.*, vol. 14(3), pp. 429-440, 2000.
29. G.E. Karniadakis, "Simulating turbulence in complex geometries", *Fluid Dynamics Research*, vol. 24 (6), pp. 343-362, 1999.
30. C. Evangelinos* and G.E. Karniadakis, "Dynamics and flow structures in the turbulent wake of rigid and flexible cylinders subject to vortex-induced vibrations", *J. Fluid Mech.*, vol. 400, pp. 91-124, 1999.
31. D.J. Newman* and G.E. Karniadakis, "Simulations of flow past a freely vibrating cable," *J. Fluid Mech.*, vol. 344, p. 95, 1997.
32. C.H. Crawford* and G.E. Karniadakis, "Reynolds stress analysis of EMHD-controlled wall turbulence, Part I: Stream-wise forcing, *Phys. Fluids*, vol. 9(3), 1997.

33. D.J. Newman* and G.E. Karniadakis, "Simulations of flow over a flexible cable: A comparison of forced and flow-induced vibrations," *J. Fluids & Structures*, vol. 10, p. 439, 1996.
34. L. Kaiktsis, G.E. Karniadakis and S.A. Orszag, "Unsteadiness and convective instabilities in flow over a backward-facing step," *J. Fluid Mech.*, vol. 321, p. 157, 1996.
35. G.E. Karniadakis and G.L. Brown, "Vorticity transport in modeling three-dimensional unsteady shear flows," *Phys. Fluids*, vol 7(4), p. 688, 1995.
36. D. Chu* & G.E. Karniadakis, "A direct numerical simulation of laminar and turbulent flow over riblet-mounted surfaces," *J. Fluid Mech.*, vol. 250, p.1, 1993.
37. M.V. Zagarola, A.J. Smits & G.E. Karniadakis, "Heat transfer enhancement in transitional channel flow," *J. Wind Engineering & Industrial Aerodynamics*, vol. 49, p. 257, 1993.
38. D. Chu*, R.D. Henderson* & G.E. Karniadakis, "Parallel spectral element-Fourier simulation of turbulence over riblet-mounted surfaces," *Theor. & Comput. Fluid Dynamics*, vol. 3, p.219, 1992.
39. A.G. Tomboulides*, G.S. Triantafyllou & G.E. Karniadakis, "A new mechanism of period doubling in free shear flows," *Phys. Fluids*, vol. 4 (7), p. 1329, 1992.
40. G.E. Karniadakis & G.S. Triantafyllou, "Three-dimensional dynamics and transition to turbulence in the wake of bluff objects," *J. Fluid Mech.*, vol. 238, p. 1, 1992.
41. P.F. Batcho* & G.E. Karniadakis, "Chaotic transport in two- and three-dimensional flow past a cylinder," *Phys. Fluids*, vol. 3(5), p. 1051, 1991.
42. D. Barkley, G.E. Karniadakis, I.G. Kevrekidis, A.J. Smits & Z.H. Shen, "Chaotic advection in a complex annular geometry," *Phys. Fluids*, vol. 3(5), p. 1063, 1991.
43. L. Kaiktsis*, G.E. Karniadakis & S.A. Orszag, "Onset of three-dimensionality, equilibria, and early transition in flow over a backward-facing step," *J. Fluid Mech.*, vol. 231, p. 501, 1991.
44. P.F. Batcho*, G.E. Karniadakis & S.A. Orszag, "Numerical investigation of the spreading of self-excited stratified jets," *ASME Symp. on Unsteady Flows*, Toronto, 1990, also in *J.Fluids & Structures*, vol. 5, p. 681-700, 1991.
45. G.S. Triantafyllou & G.E. Karniadakis, "Computational reducibility of unsteady viscous flows," *Phys. Fluids*, vol. 2, p. 653, 1990.
46. G.E. Karniadakis & G.S. Triantafyllou, "Frequency selection and asymptotic states in laminar wakes," *J. Fluid Mech.*, vol. 199, p. 447, 1989.
47. G.E. Karniadakis & G.S. Triantafyllou, "The crisis of transport measures in chaotic flow past a cylinder," *Phys. Fluids*, vol. 4, p. 628, 1989.
48. G.E. Karniadakis, B.B. Mikic & A.T. Patera, "Transport enhancement by flow destabilization: Reynolds' analogy revisited," *J. Fluid Mech.*, vol. 192, p. 365, 1988.
49. G.E. Karniadakis, "Numerical simulation of forced convection heat transfer from a cylinder in crossflow," *Int. J. Heat & Mass Transfer*, vol. 31, p. 107, 1988.

Low-Dimensional Modeling

1. X. Yang*, D. Venturi, C. Cheng, C. Chryssostomidis and G.E. Karniadakis, "EOF-based constrained sensor placement and field reconstruction from noisy ocean measurements: Application to Nantucket Sound", *J. Geophys. Res. Oceans*, vol. 115, C12072, 2010.
2. B. Yildirim*, C. Chryssostomidis and G.E. Karniadakis, "Efficient Sensor Placement for Ocean Measurements using Low-dimensional Concepts", *Ocean Modelling*, vol. 27, pp. 160-173, 2009.

3. S. Sirisup*, G.E. Karniadakis, D. Xiu and I.G. Kevrekidis, "Equation-free/Galerkin-free POD-assisted computation of incompressible flows", *Journal of Computational Physics*, vol. 207(2), pp. 568-587, 2005.
4. S. Sirisup*, G.E. Karniadakis, "Stability and accuracy of periodic flow solutions obtained by a POD-penalty method", *Physica D*, vol. 202, pp. 218-237, 2005.
5. S. Sirisup*, G.E. Karniadakis, "A spectral viscosity method for correcting the long-term behavior of POD models", *J. Comp. Phys.*, vol. 194, pp. 92-116, 2004.
6. S. Sirisup*, G.E. Karniadakis, Y. Yang and D. Rockwell, "Wave-structure interaction: simulation driven by quantitative imaging", *Proc. R. Soc. Lond. A*, vol. 460, pp. 729-755, 2004.
7. X. Ma*, G.E. Karniadakis, H. Park and M. Gharib, "DPIV-Driven simulation: A new computational paradigm", *Proc. Royal Soc. A*, vol. 459, pp. 547-565, 2003.
8. X. Ma*, G.E. Karniadakis, H. Park and M. Gharib, "DPIV/T-Driven convective heat transfer simulation", *Int. J. Heat & Mass Transfer*, vol. 45, pp. 3517-3527, 2002.
9. X. Ma* and G.E. Karniadakis, "A low-dimensional model for simulating 3D cylinder flow", *J. Fluid Mech.*, vol. 458, pp. 181-190, 2002.
10. A.K. Bangia, P.F. Batcho*, I.G. Kevrekidis and G.E. Karniadakis, "Unsteady 2D flows in complex geometries: Comparative bifurcation studies with global eigenfunction expansions," *SIAM J. Sci. Stat. Comp.*, vol. 18, p. 775, 1997.
11. P. F. Batcho* & G.E. Karniadakis, "Generalized Stokes eigenfunctions: A new trial basis for the incompressible Navier-Stokes equations," *J. Comp. Phys.*, vol 115, p. 121, 1994.
12. A.E. Deane, I.G. Kevrekidis, G.E. Karniadakis & S.A. Orszag, "Low-dimensional models for complex geometry flows: Application to grooved channels and circular cylinders," *Phys. Fluids*, vol. 3(10), p. 2337, 1991.

Parallel Computing

1. L. Grinberg* and G.E. Karniadakis, "A new domain decomposition method with overlapping patches for ultrascale simulations: Application to biological flows", *J. Comp. Phys.*, vol. 229, pp. 5541-5563, 2010.
2. L. Grinberg*, D. Pekurovsky, S. Sherwin and G. E. Karniadakis, "Parallel performance of the coarse space linear vertex solver and low energy basis preconditioner for spectral/hp elements", *Parallel Computing*, vol. 35, pp. 284-304, 2009.
3. L. Grinberg* and G.E. Karniadakis, "A scalable domain decomposition method for ultra-parallel arterial flow simulations", *Commun. Comput. Phys.*, vol. 4, pp. 1151-1169, 2008.
4. S. Dong, J. Insley, N.T. Karonis, M. Papka, J. Binns and G.E. Karniadakis. "Simulating and visualizing the human arterial system on the TeraGrid", *Future Generation Computer Systems, The International Journal of Grid Computing: Theory, Methods and Applications*, vol. 22, pp. 1011- 1017, 2006.
5. S. Dong, G.E. Karniadakis and N. Karonis, "Cross-Site Computations on the TeraGrid", *Computing in Science & Engineering*, vol. 7(5), 14-23, 2005.
6. S. Dong and G.E. Karniadakis, "Dual-level parallelism for high-order CFD methods", *Parallel Computing*, vol. 30(1), pp. 1-20, 2004. (Ten most downloaded articles in *Parallel Computing*).
7. S. Dong and G.E. Karniadakis, "Multilevel parallelization models in CFD", *Journal of Aerospace Computing, Information and Communication*, vol. 1, pp. 256-268, 2004.
8. J.S. Sobel, A.S. Forsberg, D.H. Laidlaw, R.C. Zelesnik, D.F. Keefe, I. Pivkin*, G.E. Karniadakis, P. Richardson and S. Swartz, "Particle Flurries", *IEEE Computer Graphics and Applications*, vol. 24(2), pp. 76-85, 2004.
9. S. Dong and G.E. Karniadakis, "P-refinement and P-threads", *Comput. Methods Appl. Mech. Engrg.*, vol. 192, pp. 2191-2201, 2003.

10. C. Evangelinos*, S.J. Sherwin and G.E. Karniadakis, "Parallel DNS algorithms on unstructured grids", *Comp. Meth. Appl. Mech. Engr.*, vol. 184, pp. 401-425, 2000.
11. C. Evangelinos* and G.E. Karniadakis, "Parallel CFD Benchmarks on Cray Computers," *Parallel Algorithms and Applications*, vol. 9, p. 273, 1996, also in *Proc. Int. Conf. Parallel Algorithms*, October 1995, Wuhan, China (invited presentation).
12. C.H. Crawford*, C. Evangelinos*, D.J. Newman* and G.E. Karniadakis, "Parallel benchmarks of turbulence in complex geometries," *Computers and Fluids*, vol. 25, p. 677, 1996, also in *Proc. Parallel CFD'95*, June 26-29, 1995, Pasadena, CA.
13. P. Fischer, L.W. Ho, G.E. Karniadakis, E.M. Ronquist & A.T. Patera, "Recent advances in parallel spectral element simulation of unsteady incompressible flows," *Comp. & Structures*, vol. 30, p. 217, 1988.

C. Articles in Proceedings (refereed/invited papers or extended abstracts of papers were refereed)

1. L. Grinberg*, V. Morozov, D. Fedosov, J. Insley, M.E. Papka, K. Kumar, and G.E. Karniadakis, "A new Computational Paradigm in Multiscale Simulations: Application to Brain Blood Flow", In *Proceedings of the 2011 International Conference for High Performance Computing, Networking, Storage and Analysis, SC'11*. (Gordon Bell Prize finalist) (2011).
2. L. Grinberg* and G.E. Karniadakis, "Parallel Paradigm for Ultraparallel Multi-Scale Brain Blood Flow Simulations", *Proceedings of the Second International Conference on Parallel, Distributed, Grid and Cloud Computing for Engineering*, (2011).
3. Z. Zhang*, M. Choi* and G.E. Karniadakis, "Anchor points matter in ANOVA decomposition", *Proceedings of ICOSA-HOM'09*, Springer, eds. E. Ronquist & J. Hesthaven, 2010.
4. M. Milosevic-Marden, P. Prempraneerach, J. Kirtley, G.E. Karniadakis, and C. Chryssostomidis, "An end-to-end simulator for the all-electric-ship MVDC integrated power system", *Proceedings of Grand Challenges in Modeling & Simulation, Simulation Multi-Conference*, July 2010, Ottawa, Canada.
5. X. Luo, B. Epps, C. Chryssostomidis and G.E. Karniadakis, "Comparison of turbulence models for simulating flow in waterjets", *Proceedings of 11th International Conference on Fast Sea Transportation*, 26-29 September, 2011, Honolulu, Hawaii.
6. X. Luo, C. Chryssostomidis and G.E. Karniadakis, "Spectral element/Smoothed profile method for turbulent flow simulations of waterjet propulsion systems", *Proceedings of Grand Challenges in Modeling & Simulation, Simulation Multi-Conference*, July 2010, Ottawa, Canada.
7. X. Luo, C. Chryssostomidis and G.E. Karniadakis, "Fast 3D flow simulations of a waterjet propulsion system", *Proceedings of International Simulation Multi-Conference*, July 2009, Instabul, Turkey.
8. P. Prempraneerach, J. Kirtley, C. Chryssostomidis, M. Triantafyllou, and G.E. Karniadakis, "Design of the all-electric ship: focus on integrated power system coupled to Hydrodynamics", *Proceedings of the Electric Ship Design Symposium, : Back to the Future*; presented by the Society of Naval Architects and Marine Engineers (SNAME) and the American Society of Naval Engineers (ASNE); National Harbor, MD, February 12-13, 2009.
9. G. Lin and G.E. Karniadakis, "Stochastic Simulations and Sensitivity Analysis of Plasma Flow", *AIAA 2008-1073, 46th Aerospace Sciences Meeting & Exhibit*, Reno, NV, January 7-10, 2008.
10. X. Wan and G. E. Karniadakis, "Recent advances in polynomial chaos methods", *Proceedings of the Applied Vehicle Technology Panel (AVT) Symposium: Computational Uncertainty in Military Vehicle Design (NATO/PfP Unclassified)*, 3-6 December 2007, Greece, Athens.
11. H. Baek, M.V. Jayaraman, and G.E. Karniadakis, "Distribution of WSS on the internal carotid artery with an aneurysm: A CFD sensitivity study", *ASME Proceedings, IMECE2007*, 11-15 November, Seattle, WA., 2007.

12. S. Dong, N.T. Karonis and G.E. Karniadakis. "Grid solutions for biological and physical cross-site simulations on the TeraGrid", In Proceedings of 20th IEEE International Parallel and Distributed Processing Symposium (IPDPS'06), Rhodes Island, Greece, April 2006.
13. B. Boghosian, P. Coveney, S. Dong, L. Finn, S. Jha, G.E. Karniadakis and N.T. Karonis. "Nektar, SPICE and Vortronics: Using Federated Grids for Large Scale Scientific Applications", Workshop on Challenges of Large Applications in Distributed Environments (CLADE), in conjunction with 15th International Symposium on High Performance Distributed Computing (HPDC-15), Paris, France, June 2006.
14. G. Lin*, C.-H. Su and G.E. Karniadakis, "Modeling uncertainties in supersonic flow past a wedge", 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 9-12, 2006.
15. G. Lin*, C.-H. Su and G.E. Karniadakis, "Stochastic solvers for the Euler equations", 43rd Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 10-13, 2005.
16. X. Wan* and G.E. Karniadakis, "Simulation of heat transfer with uncertainty", Proc. of HT2005, ASME Summer Heat Transfer Conference, San Fransisco, CA, July 17-22, 2005.
17. I. Pivkin*, E. Hueso, R. Wienstein, D.H. Laidlaw, S. Swartz and G.E. Karniadakis, "Simulation and visualization of airflow around bat wings during flight", International Conference on Computational Science (2), pp. 689-694, 2005.
18. E. Hueso, I. Pivkin*, S. Swartz, D.H. Laidlaw, G.E. Karniadakis and K. Breuer, "Visualization of vortices in simulated airflow around bat wings during flight", IEEE Visualization, 2004.
19. J. Xu*, S. Dong, M.R. Maxey and G.E. Karniadakis, "Wall-slippage effect in microbubble drag reduction", 2nd International Symposium on Seawater Drag Reduction, Busan, Korea, May 23-26, 2005.
20. S. Dong, J. Xu*, M.R. Maxey and G.E. Karniadakis, "Microbubble dynamics in turbulent channel flow", 2nd International Symposium on Seawater Drag Reduction, Busan, Korea, May 23-26, 2005.
21. M.R. Maxey, D. Liu*, S. Dong and G.E. Karniadakis, "New advances in Force-Coupling Method: from Micro to Macro", IUTAM Symposium on Computational Approaches to Disperse Multiphase Flow, Argonne, Illinois, 4-7 October, 2004.
22. I.V. Pivkin*, P.D. Richardson and G.E. Karniadakis, "Simulation of mural platelet aggregation", In BMES 2004 Annual Fall Meeting, Philadelphia, PA, October 2004.
23. D. Lucor*, C.-H. Su and G.E. Karniadakis, "Karhunen-Loeve representation of periodic second-order autoregressive processes", International Conference on Computational Science, Krakow, Poland, June 6-9, 2004.
24. X. Wan*, D. Xiu* and G.E. Karniadakis, "Modeling uncertainty in three-dimensional heat transfer problems", Heat Transfer Conference, Lisbon, Portugal, March 24-26, 2004.
25. M.R. Maxey, D. Liu*, G.E. Karniadakis and E. Climent, "Self-assembled particle structures for microflow systems", Paper No. K02, Proc. 5th International Conference on Multiphase Flow, ICMF'04, Yokohama, Japan, May 30-June 4, 2004.
26. M.R. Maxey, J.Xu*, S. Dong and G.E. Karniadakis, "Simulation Results for Micro-bubbles and Turbulent Drag Reduction," Proceedings of FEDSM'03, 4th ASME-JSME Joint Fluids Engineering Conference, Honolulu, Hawaii, July 6-11 2003.
27. D. Lucor*, J. Foo*, and G.E. Karniadakis, "Correlation length and force phasing of a rigid cylinder subject to VIV", IUTAM Symposium on Integrated Modeling of Fully Coupled Structure Interactions Using Analysis, Computations and Experiments, Eds. H. Benaroya and T. Wei, Kluwer Academic Publishers, p. 187, 2003.
28. J. Xu*, M.R. Maxey, and G.E. Karniadakis, "DNS of Turbulent Drag Reduction Using Micro-bubbles," AIAA2003-1280, 41st Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 6-9 2003.
29. D. Lucor*, X. Ma*, M.S. Triantafyllou and G.E. Karniadakis, "Vortex-induced Vibrations on Long Marine Risers in Sheared Flows: DSN Studies," Proceedings of FEDSM'03, 4th ASME-JSME Joint Fluids Engineering Conference, Honolulu, Hawaii, July 6-11 2003.

30. D. Liu*, M.R. Maxey and G.E. Karniadakis, "FCM-Spectral Element Method for Simulating Colloidal Micro-Devices," 2nd MIT Conference on Computational Fluid and Solid Mechanics, edited by K.J. Bathe, June 17-20 2003.
31. Z. Yosibash, R.M. Kirby*, K. Myers, B. Szabo, G.E. Karniadakis, "High-order Finite Elements for Fluid-Structure Interaction Problems," 4th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics and Materials Conference, April 7-10 2003, Norfolk, Virginia.
32. D. Lucor* and G.E. Karniadakis, "Predictability and Uncertainty in Flow-Structure Interactions", Proceedings of the Third Conference on Bluff Body Wakes and Vortex-Induced Vibrations, Port Douglas, Australia, December 2002.
33. S. Sirisup and G.E. Karniadakis, "Direct numerical simulation of flow past a wired cylinder", Proceedings of the Third Conference on Bluff Body Wakes and Vortex-Induced Vibrations, Port Douglas, Australia, December 2002.
34. S. Dong and G.E. Karniadakis, "Dual Level Parallelism for Deterministic and Stochastic CFD Problems", Proceedings of Supercomputing 2002, Baltimore, November 2002.
35. D. Xiu* and G.E. Karniadakis, "Modeling Uncertainty of Elliptic Partial Differential Equations via Generalized Polynomial Chaos", Proceedings of the 5th ASCE Engineering Mechanics Division Conference, Columbia University, New York City, June 2002.
36. D. Xiu* and G.E. Karniadakis, "Uncertainty Modeling of Burgers' Equation by Generalized Polynomial Chaos", Proceedings of the 4th International Conference on Computational Stochastic Mechanics, Corfu, Greece, June 2002.
37. I. Pivkin*, D.H. Laidlaw, P. Richardson and G.E. Karniadakis, "Moving meshes and flow simulations in coronary arteries", Proceedings of the 8th International Conference on Numerical Grid Generation in Computational Field Simulations, p. 467, Honolulu, Hawaii, June 2002.
38. J. Sobel, A.S. Forsberg, P. Richardson, D.H. Laidlaw, D.F. Keefe, I. Pivkin* and G.E. Karniadakis, "Arterial flows seen in virtual reality", Proceedings of the 21st Southern Biomedical Engineering Conference, pp. 349-350, 2002.
39. I. Pivkin*, R.M. Kirby* and G.E. Karniadakis, "High-order discontinuous Galerkin methods: Simulation of COIL flows", Proc. Third AFOSR DNS/LES Conference, 2001.
40. G. Lin* and G.E. Karniadakis, "A High-order discontinuous Galerkin method for modeling micro pulsed plasma thrusters", Proc. International Electric Propulsion Conference, Pasadena, CA, 2001.
41. D. Liu*, M. Maxey and G.E. Karniadakis, "A fast algorithm for particulate microflows in complex geometries", Proc. ASME, November 2001.
42. B. Pulvirenti, X. Ma* and G.E. Karniadakis, "A POD-based nonlinear Galerkin method for flow-thermal problems", Proc. ECCOMAS, September 2001.
43. D. Lucor*, D. Xiu* and G.E. Karniadakis, "Modeling uncertainty in flow-structure interactions", Proc. First MIT Conference, June 2001.
44. D. Lucor*, C. Evangelinos* and G.E. Karniadakis, "DNS-derived force distribution on flexible cylinders subject to VIV with shear inflow", Proc. in Flow Induced Vibration, eds. Ziada & Staubli, Bakelma, Rotterdam, 2000.
45. R.M. Kirby*, Y. Du*, D. Lucor*, X. Ma*, G.-S. Karamanos and G.E. Karniadakis, "Parallel DNS and LES of turbulence and flow-structure interactions", Proceedings of the DoD HPCMP Users Group Conference, June 5-8, 2000.
46. A. Forsberg, R.M. Kirby*, D.H. Laidlaw, G.E. Karniadakis, A. van Dam and J. Elion, "Immersive virtual reality for visualizing flow through an artery", Proc. IEEE Visualization 2000, Salt Lake City, UT, October 2000.
47. G.-S. Karamanos, C. Evangelinos*, R. Boes, R.M. Kirby* and G.E. Karniadakis, "DNS of turbulence on a PC/Linux cluster: Fact or Fiction?", Proc. SuperComputing 1999.
48. R.M. Kirby*, I. Lomtev*, C. Evangelinos*, G.-S. Karamanos and G.E. Karniadakis, "Parallel DNS of flow-structure interactions", Proceedings of the DoD HPCMP Users Group Conference, June 7-10, 1999.

49. I. Lomtev*, R.M. Kirby*, and G.E. Karniadakis, "A discontinuous Galerkin method in moving domains", In Proc. of *Discontinuous Galerkin Methods: Theory, Computation and Applications*, eds. Cockburn et al. , Springer-Verlag, NY, 1999.
50. I. Lomtev*, R.M. Kirby*, and G.E. Karniadakis, "DNS for flow past a 3D flexible wing", Proc. of Second AFOSR Conference, Rutgers, June 7-9, 1999, published by Kluwer, eds. D. Knigh & L. Sakell.
51. R.M. Kirby*, T.C. Warburton*, S.J. Sherwin*, A. Beskok* and G.E. Karniadakis, "The Nektar Code: Dynamic Simulations without Remeshing" Proc. 2nd International Conference on Computational Technologies for Fluid/Thermal/Chemical Systems with Industrial Applications, August 1-5, 1999.
52. X. Ma*, G.E. Karniadakis, G. Karamanos and S.J. Sherwin*, "Issues in LES of wake flows", AIAA 98-2893, 29th AIAA Fluid Dynamics Conference, Albuquerque, NM, June 15-18, 1998.
53. T.C. Warburton*, I. Lomtev*, R.M. Kirby*, and G.E. Karniadakis, "A discontinuous Galerkin method for the compressible Navier-Stokes equations on hybrid grids", Proc. Tenth International Conference on Finite Elements in Fluids, January 5-8, 1998, Tucson, Arizona, p. 604, Eds. M. Hafez and J.C. Heirich.
54. H. Marmanis*, Y. Du*, C.H. Crawford*, and G.E. Karniadakis, "Turbulence control via geometry modifications and electromagnetic fields", Proc. ECCOMAS 98, Athens, Greece, 1998.
55. C.H. Crawford*, H. Marmanis*, and G.E. Karniadakis, "The Lamb vector and its divergence in turbulent drag reduction", Proc. Int. Symposium on Seawater Drag Reduction, Newport, RI, July 22-24, 1998.
56. Y. Du*, C.H. Crawford*, and G.E. Karniadakis, "Lorentz force modeling in EMHD turbulence control: DNS studies", Proc. Int. Symposium on Seawater Drag Reduction, Newport, RI, July 22-24, 1998.
57. C.E. Evangelinos* and G.E. Karniadakis, "Correlation length and forces in flow past a freely-oscillating cylinder", Proc. ASME Fluids Engineering Division Summer Meeting, eds. P. Bearman and C.H.K. Williamson, Washington DC, June 21-25, 1998.
58. H.F. Liu*, N. Gatsonis, A. Beskok* and G.E. Karniadakis, Simulation models for rarefied flow past a sphere in a pipe", Proc. 21st Symposium on Rarefied Gas Dynamics, France, 1998.
59. X. Ma* and G.E. Karniadakis, "The spectrum of the turbulent near-wake: A comparison of DNS and LES", 1st AFOSR Int. Conference on DNS/LES, Ruston, LA, 1997 (invited paper).
60. A. Beskok* and G.E. Karniadakis, "Modeling separation in rarefied gas flows", AIAA 97-1783, 4th AIAA Shear Flow Conference, Snowmass Village, CO, 1997.
61. I. Lomtev* and G.E. Karniadakis, "A discontinuous spectral/hp element Galerkin method for the Navier-Stokes equations on unstructured grids", Proc. IMACS WC'97, Berlin, Germany, 1997.
62. I. Lomtev* and G.E. Karniadakis, "Simulations of viscous supersonic flows on unstructured h-p meshes", AIAA 97-0754, 35th Aerospace Sciences Meeting, Reno, 1997.
63. X. Ma* and G.E. Karniadakis, "Three-dimensional modeling of unsteady heat transfer", FEDSM97-3658, ASME Fluids Engineering Division Summer Meeting, Vancouver, 1997.
64. T.C. Warburton* and G.E. Karniadakis, "Spectral simulations of flow past a cylinder close to a free surface", FEDSM97-3689, ASME Fluids Engineering Division Summer Meeting, Vancouver, 1997.
65. C. Evangelinos* and G.E. Karniadakis, "Transition in the wake of flexible cables and beams", 7th ISOPE Conference, Honolulu, Hawaii, 1997.
66. S.J. Sherwin, C. Evangelinos*, H. Tufo and G.E. Karniadakis, "Development of a parallel unstructured spectral/hp method for unsteady fluid dynamics", Proc. Parallel CFD'97, May 1997.
67. D.J. Newman* and G.E. Karniadakis, "Low-dimensional modeling of flow-induced vibrations via proper orthogonal decomposition," 21st Symposium on Naval Hydrodynamics, Norway, 1996.

68. C.H. Crawford* and G.E. Karniadakis, "Reynolds stress analysis of controlled wall-bounded turbulence," AIAA 96-2008, 27th AIAA Fluid Dynamics Conference, June 17-20, 1996, New Orleans, LA (invited presentation).
69. C. Evangelinos* and G.E. Karniadakis, "Communication patterns and models in PRISM: A spectral element-Fourier parallel Navier-Stokes solver", Proc. Supercomputing'96, Pittsburgh, Nov. 17-22, 1996 (finalist for best student paper).
70. D.J. Newman* and G.E. Karniadakis, "Direct numerical simulations of flow over a flexible cable," Sixth Int. Conf. on Flow-Induced Vibrations, Imperial College, April 10-12, 1995, editor P.W. Bearman, Balkema.
71. D.J. Newman* and G.E. Karniadakis, "Simulations and models of flow over a flexible cable: Standing wave patterns," ASME/JSME Fluids Engineering Conference, August 1995, Hilton Head SC.
72. D.J. Newman* and G.E. Karniadakis, "Simulations of flow over a flexible cable: Responses and flow patterns," AIAA 95-1744, 12th AIAA CFD Conference, June 19-22, 1995, San Diego, CA.
73. C.H. Crawford* and G.E. Karniadakis, "Control of unsteady flows via electro-magnetic fields," AIAA 95-2185, 26th AIAA Fluid Dynamics Conference, June 19-22, 1995, San Diego, CA.
74. A. Beskok*, W. Trimmer, and G.E. Karniadakis, "Rarefaction, compressibility and thermal creep effects for gas microflows," ASME Annual Winter Meeting, November 1995, San Francisco, CA.
75. S.J. Sherwin* and G.E. Karniadakis, "Triangular and tetrahedral spectral elements," ICOSAHOM'95, June 5-9, 1995, Houston, TX.
76. T.C. Warburton*, S.J. Sherwin* and G.E. Karniadakis, "Unstructured hp/spectral elements: Connectivity and optimal ordering," Int. Conf. on Comp. Engin. Science, July 30-August 3, 1995, Mauna Lani, Hawaii.
77. T.C. Warburton*, S.J. Sherwin* and G.E. Karniadakis, "Hierarchical refinement using spectral/hp triangles and prisms," Sixth Int. Symp. on CFD, September 4-8, 1995, Lake Tahoe, Nevada.
78. S.J. Sherwin* and G.E. Karniadakis, "Adaptive hp finite elements on unstructured meshes," IX Int. Conf. on Finite Elements in Fluids: New Trends and Applications, October 15-21, 1995, Venice, Italy.
79. S.J. Sherwin* and G.E. Karniadakis, "Tetrahedral spectral elements for CFD," Proc. 14th Int. Conf. Num. Meth. Fluid Dynamics, July 11-15, 1994, Bangalore, India.
80. S.J. Sherwin* and G.E. Karniadakis, "A triangular spectral element method: Algorithms and flow applications," Computational Fluid Dynamics '94, p. 62, John Wiley & Sons, 1994.
81. R.D. Henderson*, C.H. Crawford* & G.E. Karniadakis, "Structure and statistics of turbulent flow over riblets," AIAA-93-0548, 31st Aerospace Meeting, Reno, 1993.
82. A.G. Tomboulides*, S.A. Orszag & G.E. Karniadakis, "Direct and large eddy simulation of axisymmetric wakes," AIAA-93-0546, 31st Aerospace Meeting, Reno, 1993.
83. P.F. Batcho* & G.E. Karniadakis, "Global spectral methods for the solution of incompressible Navier-Stokes equations in complex geometries," Proc. 5th Int. Symp. on CFD, Sendai, Japan, 1993.
84. J. Trujillo* & G.E. Karniadakis, "A spectral element velocity-vorticity algorithm for the incompressible Navier-Stokes equations," Proc. 5th Int. Symp. on CFD, Sendai Japan, 1993.
85. R.D. Henderson* and G.E. Karniadakis, "Unstructured spectral element methods for the incompressible Navier-Stokes equations," in Proc. Finite Elements in Fluids: New Trends and Applications," eds. K.Morgan, E. Onate, J. Periaux, J. Peraire and O.C. Zienkewicz, Pineridge Press, 1993.
86. A. Beskok* and G.E. Karniadakis, "Simulation of heat and momentum transfer in complex micro-geometries," AIAA 93-3269, 1st Shear Flow Conference, Orlando, 1993.
87. H.M. Blackburn and G.E. Karniadakis, "Two- and three-dimensional simulations of vortex-induced vibration of a circular cylinder," Proc. 3rd ISOPE-93 Conf., vol. 3, p. 715, Singapore, 1993.

88. J. Giannakouros*, D. Sidilkover & G.E. Karniadakis, "Hybrid spectral element methods for hyperbolic systems of conservation laws," Proc. Fourth Int. Conf. on Hyperb. problems, Taormina, Italy, April, 1992.
89. S.J. Sherwin*, E. Barough, S.A. Orszag & G.E. Karniadakis, "Application of an ENO scheme to simulate the ion etching process," Proc. Fourth Int. Conf. on Hyperb. problems, Taormina, Italy, April, 1992.
90. C.H. Crawford*, D. Chu* & G.E. Karniadakis, "Laminar and turbulent flow over optimal riblets," Proc. First European Conference on CFD, Brussels, 1992, vol. 1, p. 191, ed. C. Hirsch, J. Periaux & W. Kordulla, Elsevier.
91. M.V. Zagarola, A.J. Smits & G.E. Karniadakis, "Heat transfer enhancement in transitional channel flow," Proc. Second Int. Coll. on Bluff Body Aerodynamics and Applications, Melbourne, 1992.
92. A. Beskok* & G.E. Karniadakis, "Simulation of slip-flows in complex micro-geometries," Proc. ASME, Winter Annual Meeting, Anaheim, CA, 1992.
93. G.E. Karniadakis, S.A. Orszag & V. Yakhot, "RNG simulations of transitional and turbulent flow over a backward-facing step," (invited), Proc. on Large-Eddy Simulation: Where Do We Stand?, St. Petesbourg, FL, 1991, also in Large Eddy Simulation of Complex Engineering and Geophysical Flows, p. 159, eds. B. Galperin & S.A. Orszag, Cambridge University Press, 1993.
94. D. Chu* & G.E. Karniadakis, "Numerical investigation of drag reduction in flow over surfaces with streamwise aligned riblets," AIAA-91-0518, 29th Aerospace Sciences Meeting, Reno, 1991.
95. A.G. Tomboulides*, S.A. Orszag & G.E. Karniadakis, "Three-dimensional simulation of flow past a sphere," Proc. 1st ISOPE-91 Conf., Edinburgh, 1991.
96. R.D. Henderson* & G.E. Karniadakis, "Hybrid spectral element methods for flows over rough walls," Proc. 5th Conf. on Domain Decomposition Methods, SIAM, 1991.
97. D. Sidilkover, J. Giannakouros* & G.E. Karniadakis, "Hybrid spectral element methods for hyperbolic conservation laws," Proc. Ninth GAMM Conf. on Num. Meth. in Fluid Mech., Vieweg Verlag, 1991.
98. D. Chu*, R.D. Henderson* & G.E. Karniadakis, "Parallel hybrid spectral element methods for incompressible flows," Proc. 4th Int. Conf. on CFD, Davis, 1991.
99. G.S. Triantafyllou & G.E. Karniadakis, "The route to chaos in the wake of bluff object," in Research Trends in Physics: Chaotic Dynamics and Transport in Fluids and Plasmas, Ed. I. Prigogine et al., AIP, 1991.
100. G.S. Triantafyllou & G.E. Karniadakis, "The route to turbulence in nominally two- dimensional free shear flows," Proc. 8th Symp. on Turb. Shear Flows, Munich, 1991.
101. D. Pathria & G.E. Karniadakis, "Dynamic generation of spectral element meshes through wavelet analysis," USA-French Workshop on Wavelets and Turbulence, Princeton, 1991, (unpublished).
102. G.E. Karniadakis, "Three-dimensional equilibria and transition in complex geometry flows," Proc. 1st IMACS Int. Conf. on Comp. Phys., 1990, (invited).
103. G.E. Karniadakis & G.S. Triantafyllou, "Direct numerical simulation of the three-dimensional vortex street," AIAA-90-0113, 28th Aerospace Sciences Meeting, Reno, 1990.
104. A.G. Tomboulides*, S.A. Orszag & G.E. Karniadakis, "Three-dimensional simulation of flow past a sphere," U.S. Nat'l Congress on Theor. & Appl. Mech., Tucson, AZ, 1990, (invited).
105. G.E. Karniadakis & S.A. Orszag, "Spectral simulations of complex flows," Proc. 5th Int. Conf. on Sciences and Engineering on Supercomputers, London, 1990, (invited).
106. E. Barough, B. Bradie, U. Hollerbach, G.E. Karniadakis & S.A. Orszag, "Comprehensive 3-D notching simulator with non-planar substrates," Proc. on Optical/Laser Microlithography, vol. 3, p. 334, SPIE, 1990.
107. G.E. Karniadakis, A. Yakhot, S.A. Orszag & V. Yakhot, "Spectral element-RNG simulations of turbulent heat transfer in complex geometries," Proc. 9th Int. Heat Transfer Conf., vol. 3, p. 247, 1990.

108. G.E. Karniadakis, S.A. Orszag & V. Yakhot, "Large eddy/RNG simulation of flow over a backward-facing step," in *Engineering Turbulence: Modeling and Experiments*, Elsevier, p. 269, 1990.
109. C. Berman, J. Ramos, G.E. Karniadakis & S.A. Orszag, "Time-dependent jet flow and noise computations," AIAA-90-3961, 13th Aero-acoustics Conf., Tallahassee, 1990.
110. G.E. Karniadakis, A. Yakhot, S. Rakib, S. Orszag & V. Yakhot, "Spectral element-RNG simulation of turbulent flows in complex geometries," *Proc. 7th Symp. on Turb. Shear Flows*, Stanford, 1989.
111. C. Mavriplis, P. Fischer & G.E. Karniadakis. "Direct numerical simulation of the impulsive flow past a wedge-like corner," *Proc. 10th Austr. Fluid Mech. Conf.*, vol. II, 1989.
112. G.S. Triantafyllou & G.E. Karniadakis, "Forces on a vibrating cylinder in steady cross- flow," *Proc. 8th OMAE (Offshore Mech & Arctic Eng.) Conf.*, Hague, 1989.
113. C. Begue, C. Bernardi, N. Debit, Y. Maday, G.E. Karniadakis & A.T. Patera, "Nonconforming spectral element-finite element approximations for the Navier-Stokes equations," *Proc. 8th Int. Conf. on Comp. Methods in Applied Science and Engineering*, Versaille, 1987, also in *C.M.A.M.E.*, vol. 75, p. 109, 1989.
114. G.E. Karniadakis, S.A. Orszag, A. Yakhot and V. Yakhot, "RNG modeling techniques for complex turbulent flows," *Proc. 5th Int. Conf. on Num. Ship Hydrodynamics*, Hiroshima, 1989, (invited).
115. Y. Maday, A.T. Patera & G.E. Karniadakis, "Spectral and finite element approximation for the unsteady incompressible Euler equations," *Notes aux Reudus de l'Academie des Sciences*, Paris, 1987, (invited).
116. G.E. Karniadakis & C. Amon, "Stability calculations of wall bounded flows in complex geometries," *Proc. 6th IMACS Symp. on P.D.E.s*, p. 525, 1987, (invited).
117. G.E. Karniadakis, B.B. Mikic & A.T. Patera, "Heat transfer enhancement by flow destabilization: Application to the cooling of chips," *Int. Symp. on Cooling Technology for Electronic Equipment*, Hemisphere, p. 587, 1987.
118. M. Greiner, G.E. Karniadakis, B.B. Mikic & A.T. Patera, "Heat transfer augmentation and hydrodynamic stability theory: Understanding and exploitation," *Proc. Heat Transfer Conf.*, Korea, 1986.
119. E.T. Bullister, G.E. Karniadakis, E.M. Ronquist & A.T. Patera, "Solutions of the unsteady Navier-Stokes equations by spectral element methods," *Proc. 6th Int. Symp. on Finite Element Methods in Flow Problems*, Antibes, 1986.
120. G.E. Karniadakis, B.B. Mikic & A.T. Patera, "Unsteady heat transfer from a cylinder in crossflow: A direct numerical simulation," *Proc. 8th Int. Heat Transfer Conf.*, vol. 2, p. 429, 1986.
121. G.E. Karniadakis, E.T. Bullister, B.B. Mikic & A.T. Patera, "A spectral element method applied to the cooling of electronic components," *Proc. AIAA/ASME Thermod. and Heat Transfer Conf.*, Boston, 1986.
122. G.E. Karniadakis & A.T. Patera, "A spectral element method for the simulation of unsteady incompressible flows with heat transfer," *Proc. 4th Int. Symp. on Num. Meth. in Eng.*, Springer, p. 231, 1986.
123. G.E. Karniadakis, E.T. Bullister & A.T. Patera, "A spectral element method for solution of two- and three-dimensional time-dependent incompressible Navier-Stokes equations," *Proc. Europe-U.S. Conf. on Finite Element Methods for Nonlinear Problems*, Springer-Verlag, p. 803, 1985.