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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/NanoTechnology 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.
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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.
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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.
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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. Z. Zhang, X. Yang, G. Lin and G.E. Karniadakis, "Numerical solution of the Stratonovich- and Ito-Euler equations: Application to the stochastic piston problem", *J. Comp. Phys.*, vol. 236, pp. 15-27, 2013.
2. Z. Zhang*, B. Rosvoskii, M.V. Tretyakov and G.E. Karniadakis, "A multi-stage Wiener chaos expansion method for stochastic advection-diffusion reaction equations", *SIAM J. Sci. Comput.*, 34(2), A914-A936, 2012.
3. 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.

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9. 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.
10. J. Foo* and G.E. Karniadakis, "Multi-element probabilistic collocation method in high dimensions", *J. Comp. Phys.*, vol. 229(5), pp. 1536-1557, 2010.
11. D. Venturi, X. Wan and G.E. Karniadakis, "Stochastic bifurcation analysis of Rayleigh-Bernard convection", *J. Fluid Mech.*, vol. 650, pp. 391-413, 2010.
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13. 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.
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15. 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.
16. 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. .
17. 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.
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19. 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.
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21. 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.
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28. 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.
29. 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.
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31. 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.
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Spectral Element and DG Methods

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2. 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.

3. 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.
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9. X. Wan* and G.E. Karniadakis, "A sharp error estimate for the fast Gauss transform", *J. Comp. Phys.*, vol. 219, pp. 7-12, 2006.
10. 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.
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