DONALD ESTEP

CONTACT INFORMATION

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	Simon Fraser University
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EDUCATION

1977-81	B.A.	Columbia College, Columbia University
		Swimming Junior Varsity
1981-87	M.S., Ph.D.	Department of Mathematics, University of Michigan
		Advisor: Jeffrey Rauch
		Thesis: L^{∞} Bounds for L^2 Stable Operators in One Dimension

ACADEMIC CAREER

1987-2000	School of Mathematics, Georgia Institute of Technology
	Assistant, Associate, Full Professor
2000-2014	Department of Mathematics, Colorado State University
	Associate, Full Professor
2006-2020	Department of Statistics, Colorado State University
	Full Professor
2017-2020	Colorado State University
	University Distinguished Professor Emeritus
2019-	Department of Statistics and Actuarial Science, Simon Fraser University
	Full Professor and Canada (Tier 1) Research Chair

ADMINISTRATIVE APPOINTMENTS

2003-09	(co) Director, Program for Interdisciplinary Mathematics, Ecology, and Statistics
	A National Science Foundation IGERT project at Colorado State University
2006-19	Director, Center for Interdisciplinary Mathematics and Statistics
	A *Program of Research and Scholarly Excellen*ce at Colorado State University
2017-19	Chair, Department of Statistics, Colorado State University
2019-	Director, Canadian Statistical Sciences Institute (CANSSI)
2023-26	Associate Dean for Research, Faculty of Sciences

LONG TERM VISITS

3/90-7/90, 3/94-8/94, 3/95-7/95	Department of Mathematics, Chalmers University of Technology, Göteborg, Sweden
3/98-4/98	Mittag-Leffler Institute, Stockholm, Sweden
1991-93	Applied Mathematics, California Institute of Technology
8/10-12/10	Department of Atmospheric Sciences, Colorado State University

AWARDS

1993-95	International Research Fellow, National Science Foundation
2005	Outstanding Professor in Graduate Instruction in Mathematics, Colorado State University
2005	Computational and Mathematical Methods in Science and Engineering (CMMSE) Prize
2007	Excellence in Teaching Award for Graduate Education and Mentoring, College of Natural Sciences, Colorado State University
2008-20	Program of Research and Scholarly Excellence distinction for the Center for Interdisciplinary Mathematics and Statistics at Colorado State University
2009-20	University Interdisciplinary Research Scholar, Colorado State University
2009	Oliver P. Pennock Distinguished Service Award, Colorado State University
2011	University Scholarship Impact Award, Colorado State University
2013-14	Chalmers Jubilee Professor, Chalmers University of Technology, Göteborg, Sweden
2014-	Fellow of the Society for Industrial and Applied Mathematics
2017-20	University Distinguished Professor, Colorado State University
2020-	Canada Research Chair (Tier 1), Computational Probability and Uncertainty Quantification

EDITORIAL BOARDS

2019-	Editorial Board, *Computational and Mathematical Methods*
2005-19	Associate Editor, *SIAM Journal on Numerical Analysis*
2006–07	Associate Editor, *International Journal of Computer Mathematics*
2008 –	Associate Editor, *Journal of Applied Mathematics and Computing*
2009-12	Associate Editor, *Multiphysics Modeling Book Series,* A. A. Balkema Publishing
2012 -	Advisory Editor, *International Journal of Computer Mathematics*
2010 -	Associate Editor, *International Journal for Uncertainty Quantification*
2009 -	Editor in Chief, *SIAM Book Series on Computational Science and Engineering*
2012-17	Co-Editor in Chief (founding), *SIAM/ASA Journal on Uncertainty Quantification*
2017-20	Associate Editor, *SIAM/ASA Journal on Uncertainty Quantification*
2019-20	Guest Editor, Special Issue of the *Canadian Journal of Statistics* on COVID
2020-	Associate Editor, *SIAM Review*

PRINCIPAL PROFESSIONAL APPOINTMENTS

- Member, *SIAM Education Committee,* 2006-2011
- Member, Department of Energy, *Applied Mathematics Strategic Plan Recommendation Panel*, 2008, report *Applied Mathematics at the U.S. Department of Energy: Past, Present, and Future* published by DOE and SIAM
- Program Leader, *SAMSI Program on Environmental Sensor Network*s, 2008-2009
- Associate Chair, Department of Mathematics, 2008-2010
- Advisory Board, *Center for Advanced Modeling and Simulation*, Idaho National Laboratory, 2009-12
- Governing Board, *Statistical and Applied Mathematical Sciences Institute (SAMSI)*, 2009-2014
- Member, *National Science Foundation Office of Cyberinfrastructure Grand Challenges Communities Task Force*, Co-Lead of the Computational Methodologies Working Group, 2009-2010, co-author of Task Force report
- Moderator, *SAMSI National SIAM and ASA Town Hall Meeting on Uncertainty Quantificatio*n, 2010
- Co-Organizer and first Chair, *SIAM Activity Group on Uncertainty Quantification*, 2010-12
- Program Leader, *SAMSI Program on Uncertainty Quantification*, 2011-2012

- Co-Chair, *SIAM ASA USACM Conference on Uncertainty Quantification,* 2011-2012
- Member, *American Mathematical Society Simmons Travel Grants Committee*, 2011-2013
- Moderator, *Mathematics in the Geosciences Worksho*p, Northwestern University, 2011
- Member, *Computer and Information Sciences External Review Board*, Sandia National Laboratories, 2012-2015
- Member, *SIAM Book Committee*, 2013-2019
- Associate Chair for Graduate Studies, Department of Statistics, Colorado State University, 2014-16
- Chair of the Department of Statistics, Colorado State University, 2017-2019
- Director, Canadian Statistical Sciences Institute (CANSSI), 2019-
- Associate Dean for Research, Faculty of Sciences, Simon Fraser University, 2023-

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- American Statistical Association
- Institute of Mathematical Statistics
- International Statistical Engineering Association
- Society for Industrial and Applied Mathematics
- Statistical Society of Canada

PEER-REVIEWED RESEARCH ARTICLES

1. *Boundedness of dispersive difference schemes*, D. Estep, M. Loss, and J. Rauch, Mathematics of Computation 55 (1990), 55-87
2. *Some stability aspects of schemes for the adaptive integration of stiff initial value problems*, L. Dieci and D. Estep, SIAM Journal on Scientific and Statistical Computing 12 (1991), 1284-1303
3. *The discontinuous Galerkin method for semilinear parabolic problems*, D. Estep and S. Larsson, RAIRO Modélisation Mathématique et Analyse Numérique 27 (1993), 35-54
4. *Global error control for the continuous Galerkin finite element method for ordinary differential equations,* D. Estep and D. French, RAIRO Modélisation Mathématique et Analyse Numérique 28 (1994), 815-852
5. *An analysis of numerical approximations of metastable solutions of the bistable equation*, D. Estep, Nonlinearity 7 (1994), 1445-1462
6. *A normal form analysis of dispersion in numerical schemes for the linear Korteweg-deVries equation*, D. Estep, Applicable Analysis 52 (1994), 53-68
7. *A posteriori error bounds and global error control for approximations of ordinary differential equations*, D. Estep, SIAM Journal on Numerical Analysis 32 (1995), 1-48
8. *The rate of error growth in Hamiltonian-conserving integrators*, D. Estep and A. Stuart, Zeitschrift für Angewandte Mathematik und Physik 46 (1995), 407-418
9. *Introduction to adaptive methods for differential equations*, K. Eriksson, D. Estep, P. Hansbo and C. Johnson, Acta Numerica (1995), 105-158.
10. *h-adaptive boundary element schemes*, C. Carstensen, D. Estep and E. Stephan, Computational Mechanics 15 (1995), 372-383
11. *A modified equation for dispersive difference schemes*, D. Estep, Applied Numerical Mathematics 17 (1995), 299-309
12. *Introduction to computational methods for differential equations*, K. Eriksson, D. Estep, P. Hansbo, and C. Johnson, in *Theory of Numerics for Ordinary and Partial Differential Equations*, M. Ainsworth, J. Levesley, W. A. Light, and M. Marletta, eds, Oxford University Press, New York,

1995

13. *Accurate parallel integration of large sparse systems of differential equations*, D. Estep and R. Williams, Mathematical Models and Methods in Applied Sciences 6 (1996), 535-568

14. *Error estimation for numerical differential equations*, D. Estep, S. Verduyn Lunel and R. Williams, Invited Article, IEEE Antenna and Propagation Magazine 38 (1996), 71-76

15. *The computability of the Lorenz system*, D. Estep and C. Johnson, Mathematical Models and Methods in Applied Sciences 8 (1998), 1277-1305

16. *Computational error estimation and adaptive mesh refinement for a finite element solution of launch vehicle trajectory problems*, D. Estep, D. Hodges and M. Warner, SIAM Journal on Scientific Computing 21 (2000), 1609-1631 (electronic)

17. *Using Krylov-subspace iterations in discontinuous Galerkin methods for nonlinear reaction-diffusion systems*, D. Estep and R. Freund, in Lecture Notes in Computational Science and Engineering 11, B. Cockburn, G. E. Karniadakis, C. -W. Shu, Eds, Springer-Verlag, New York, 2000, 327-336.

18. *The solution of a launch vehicle trajectory problem by an adaptive finite element method*, D. Estep, D. H. Hodges, M. Warner, Computer Methods in Applied Mechanics and Engineering, 190 (2001), 4677-4690

19. *Analysis of shear layers in a fluid with temperature-dependent viscosity*, D. Estep, S. Verduyn Lunel, and R. Williams, Journal on Computational Physics 173 (2001), 17-60.

20. *Accounting for stability: a posteriori estimates based on residuals and variational analysis*, D. Estep, M. Holst, D. Mikulencak, Communications in Numerical Methods in Engineering 18 (2002), 15-30

21. *The dynamical behavior of the discontinuous Galerkin method and related difference schemes*, D. Estep and A. Stuart, Mathematics of Computation 71 (2002), 1075-1103

22. *Generalized Green's functions and the effective domain of influence,* D. Estep, M. Holst, and M. Larson, SIAM Journal on Scientific Computing 26 (2005), 1314-1339

23. *Fast and reliable methods for determining the evolution of uncertain parameters in differential equations,* D. Estep and D. Neckels, Journal on Computational Physics 213 (2006), 530-556

24. *The nonlinear power method*, S. Eastman and D. Estep, Applicable Analysis 86 (2007), 1303 – 1314

25. *Fast methods for determining the evolution of uncertain parameters in reaction-diffusion equations,* D. Estep and D. Neckels, Computer Methods in Applied Mechanics and Engineering 196 (2007), 3967 – 3979

26. *A posteriori – a priori analysis of multiscale operator splitting*, D. Estep, V. Ginting, D. Ropp, J. Shadid, and S. Tavener, SIAM Journal on Numerical Analysis 46 (2008), 1116-1146

27. *Continuum modeling of large networks*, E. Chong, D. Estep, and J. Hannig, International Journal of Numerical Modeling: Electronic Networks, Devices, and Fields, 21 (2008), 169-186

28. *A posteriori error estimation of approximate boundary fluxes*, T. Wildey, S. Tavener, and D. Estep, Communications in Numerical Methods in Engineering, 24 (2008), 421-434

29. *A posteriori analysis and improved accuracy for an operator decomposition solution of a conjugate heat transfer problem*, D. Estep, S. Tavener, T. Wildey, SIAM Journal on Numerical Analysis, 46 (2008), 2068-2089

30. *Analysis of the sensitivity properties of a model of vector-borne bubonic plague,* M. Buzby, D. Neckels, M. Antolin, and D. Estep, Royal Society Journal Interface, 5 (2008), 1099-1107

31. *A posteriori analysis and adaptive error control for multiscale operator decomposition methods for coupled elliptic systems I: Triangular systems*, V. Carey, D. Estep, and S. Tavener, SIAM Journal on Numerical Analysis 47 (2009), 740-761

32. *Nonparametric density estimation for randomly perturbed elliptic problems II: Applications and adaptive modeling*, D. Estep, A. Malqvist, S. Tavener, International Journal for Numerical Methods

in Engineering 80 (2009), 846-867

33. *A posteriori error analysis for a transient conjugate heat transfer problem*, D. Estep, S. Tavener, T. Wildey, Finite Elements in Analysis and Design 45 (2009), 263-271

34. *Nonparametric density estimation for randomly perturbed elliptic problems I: Computational methods, a posteriori analysis, and adaptive error control,* D. Estep, A. Malqvist, and S. Tavener, SIAM Journal on Scientific Computing 31 (2009), 2935-2959

35. *A posteriori error analysis of a cell-centered finite volume method for semilinear elliptic problems*, D. Estep, M. Pernice, D. Pham, S. Tavener, H. Wang, Journal of Computational and Applied Mathematics 233 (2009), 459-472

36. *A posteriori error estimation and adaptive mesh refinement for a multi-discretization operator decomposition approach to fluid-solid heat transfer*, D. Estep, S. Tavener, T. Wildey, Journal of Computational Physics 229 (2010), 4143-4158

37. *Blockwise adaptivity for time dependent problems based on coarse scale adjoint solutions*, V. Carey, D. Estep, A. Johansson, M. Larson, and S. Tavener, SIAM Journal on Scientific Computing 32 (2010), 2121-2145

38. *A measure-theoretic computational method for inverse sensitivity problems I: Method and analysis*, J. Breidt, T. Butler and D. Estep, SIAM Journal on Numerical Analysis 49 (2011), 1836-1859

39. *A posteriori error analysis for a cut cell finite volume method*, D. Estep, S. Tavener, M. Pernice and H. Wang, Computer Methods in Applied Mechanics and Engineering 200 (2011), 2768-2781

40. *Nonparametric density estimation for randomly perturbed elliptic problems III: Convergence, complexity, and generalizations*, D. Estep, M. Holst, A. Malqvist, Journal of Applied Mathematics and Computing 38 (2012), 367-387

41. *Optimal design and directional leverage with applications in differential equation models*, N. Burch, D. Estep, and J. Hoeting, Metrika, DOI: 10.1007/s00184-011-0358-4, 2011

42. *A computational measure theoretic approach to inverse sensitivity problems II: A posteriori error analysis*, T. Butler, D. Estep and J. Sandelin, SIAM Journal on Numerical Analysis, 50 (2012), 22-45

43. *Viscoelastic effects during loading play an integral role in soft tissue mechanics*, K. Troyer, D. Estep, and C. Puttlitz, Acta Biomaterialia 8 (2012), 234-244

44. *A posteriori analysis of multirate numerical method for ordinary differential equations*, D. Estep, V. Ginting, S. Tavener, 2012, Computer Methods in Applied Mechanics and Engineering, 223-224 (2012), 10-27

45. *Adaptive error control for an elliptic optimization problem*, Applicable Analysis, D. Estep and S. Lee, 2012, DOI:10.1080/00036811.2012.683785, 1-15

46. *A numerical method for solving a stochastic inverse problem for parameters*, T. Butler and D. Estep, Annals of Nuclear Energy, 2012, 86-94, 10.1016/j.anucene.2012.05.016

47. *Analysis of routing protocols and interference-limited communication in large networks via continuum modeling,* N. Burch, E. Chong, D. Estep, J. Hannig, Journal of Engineering Mathematics, 79 (2013), 183-199

48. *Multiphysics simulations: Challenges and opportunities,* D. E. Keyes, L. C. McInnes, C. Woodward, W. Gropp, E. Myra, M. Pernice, J. Bell, J. Brown, A. Clo, J. Connors, E. Constantinescu, D. Estep, K. Evans, C. Farhat, A. Hakim, G. Hammond, G. Hansen, J. Hill, T. Isaac, X. Jiao, K. Jordan, D. Kaushik, E. Kaxiras, A. Koniges, K. Lee, A. Lott, Q. Lu, J. Magerlein, R. Maxwell, M. McCourt, M. Mehl, R. Pawlowski, A. Peters Randles, D. Reynolds, B. Riviere, U. Ruede, T. Scheibe, J. Shadid, B. Sheehan, M. Shephard, A. Siegel, B. Smith, X. Tang, C. Wilson, and B. Wohlmuth, International Journal of High Performance Computing Applications 27 (2013)

49. *Continuum modeling and control of large nonuniform wireless networks via nonlinear partial differential equations*, Y. Zhang, E. Chong, J. Hannig, and D. Estep, Abstract and Applied Analysis

16 (2013), doi:10.1155/2013/262581, 1-16

50. *A posteriori analysis of an iterative multi-discretization method for reaction-diffusion systems*, D. Estep. V. Ginting, J. Hameed, and S. Tavener, Computer Methods in Applied Mechanics and Engineering, 267 (2013), 1-22

51. *A posteriori analysis and adaptive error control for operator decomposition solution of coupled semilinear elliptic systems*, V. Carey, D. Estep, S. Tavener, International Journal of Numerical Methods in Engineering 94 (2013), 826-849

52. *A-posteriori error estimates for mixed finite element and finite volume methods for problems coupled through a boundary with non-matching grids*, T. Arbogast, D. Estep, B. Sheehan, and S. Tavener, IMA Journal of Numerical Analysis, 24 (2013), 1625-1653

53. *Approximating extremely large networks via continuum limits*, Y. Zhang, E. Chong, J. Hannig, and D. Estep, IEEE Access, 1 (2013), 577-595

54. *A posteriori error estimation for the Lax-Wendroff finite difference scheme,* J. B. Collins, D. Estep, and S. Tavener, Journal of Computational and Applied Mathematics 263C (2014), 299-311

55. *A measure-theoretic computational method for inverse sensitivity problems III: Multiple quantities of interest*, T. Butler, D. Estep, S. Tavener, C. Dawson, J. Westerink, SIAM ASA Journal on Uncertainty Quantification, 2 (2014), 174-202

56. *Uncertainty quantification for approximate p-quantiles for physical models with stochastic inputs*, D. Elfverson, D. Estep, F. Hellman, A. Malqvist, SIAM ASA Journal on Uncertainty Quantification, 2 (2014), 826–850

57. *A posteriori error analysis of IMEX time integration schemes for advection-diffusion-reaction equations,* J. Chaudry, D. Estep, V. Ginting, J. Shadid, and S. Tavener, Computer Methods in Applied Mechanics and Engineering, 285 (2014), 730-751

58. *A posteriori error analysis for finite element methods with projection operators as applied to explicit time integration techniques*, J. Collins, D. Estep and S. Tavener, BIT Numerical Mathematics, 55 (2015) 1017-1042

59. *The interaction of iteration error and stability for linear partial differential equations coupled through an interface,* B. Sheehan, D. Estep, S. Tavener, J. Cary, S. Kruger, A. Hakim, A. Pletzer, J. Carlsson, and S. Vadlamani, Advances in Mathematical Physics, 2015, 13 pages, doi:10.1155/2015/787198

60. *A posteriori error estimates for mixed finite element and finite volume methods for parabolic problems coupled through a boundary with non-matching discretizations,* T. Arbogast, D. Estep, B. Sheehan, and S. Tavener, SIAM ASA Journal on Uncertainty Quantification, 3 (2015), 169-198

61. *Adaptive finite element solution of multiscale PDE-ODE systems*, A. Johansson, J. H. Chaudhry, V. Carey, D. Estep, V. Ginting, M. Larson, and S. Tavener, Computer Methods in Applied Mechanics and Engineering, 287 (2015), 150–171

62. *Definition and solution of a stochastic inverse problem for the Manning's n parameter field in hydrodynamic models*, T. Butler, L. Graham, D. Estep, C. Dawson, and J.J. Westerink, Advances in Water Resources, 78 (2015), 60–79

63. *A posteriori analysis for iterative solvers for non-autonomous evolution problems*, J. H. Chaudry, D. Estep, V. Ginting, and S. Tavener, SIAM ASA Journal on Uncertainty Quantification, 3 (2015), 434-459

64. *On a perturbation method for stochastic parabolic PDE,* D. Estep and P. Polyakov, Communications in Mathematics and Statistics: 3 (2015), 215-226

65. *A posteriori error estimation for a cut cell finite volume method with uncertain interface location*, J. B. Collins, D. Estep, and S. Tavener, International Journal of Uncertainty Quantification, 5 (2015), 415-432

66. *Parameter estimation and prediction for groundwater contamination based on measure theory,* T. Butler, C. Dawson, D. Estep, S. Mattis, V. Vesselinov, Water Resources Research, 52 (2015), 7808-7629

67. *A posteriori error analysis of two stage computation methods with application to efficient resource allocation and the Parareal Algorithm,* J. H. Chaudhry, D. Estep, S. Tavener, V. Carey, and J. Sandelin, SIAM Journal on Numerical Analysis, 54 (2016), 2729-3122

68. *Exploration of efficient reduced-order modeling and a posteriori error estimation,* J. H. Chaudhry, D. Estep, M. Gunzburger, International Journal on Numerical Methods for Engineering, 111 (2016), 102-122

69. *A stochastic inverse problem for multiscale models,* N. Panda, T. Butler, D. Estep, L. Graham, and C. Dawson, Journal for Multiscale Computational Engineering, 15 (2017), 265-283

70. *Efficient distribution estimation and uncertainty quantification for elliptic problems on domains with stochastic boundaries,* J. H. Chaudhry, N. Burch, D. Estep, SIAM/ASA Journal on Uncertainty Quantification, 6 (2018), 1127-1150

71. *Adjoint methods for uncertainty quantification in applied computational electromagnetics: FEM scattering examples,* C. Key, A. Smull, B. M. Notaros, D. Estep, and T. Butler, *Invited Paper, Special Issue Advanced Computational Electromagnetic Methodologies and Techniques,* ACES Journal, February 2019, ISBN: 978-0-9960078-8-7

72. *A posteriori error estimation and adaptive discretization refinement using adjoint methods in CEM: A study with a one-dimensional higher-order FEM scattering example,* C. Key, A. Smull, D. Estep, T. Butler, and B. M. Notaros, IEEE Transactions on Antennas and Propagation 68 (2020), 3791-3806.

73. *Adjoint-based accelerated adaptive refinement in frequency domain 3-D finite element method scattering problems,* J. Harmon, C. Key, D. Estep, T. Butler, and B. M. Notaros, IEEE Transactions on Antennas and Propagation, 69 (2020), 940-949.

74. *Error estimation and uncertainty quantification for first time to a threshold value,* J. H. Chaudhry, D. Estep, Z. Stevens, S. Tavener, BIT Numerical Mathematics, 2020, https://doi.org/10.1007/s10543-020-00825-0, 33 pages.

75. *A posteriori error analysis for Schwarz overlapping domain decomposition methods,* J. H. Chaudhry, D. Estep, S. Tavener, BIT Numerical Mathematics, 2021, 0.1007/s10543-021-00864-1.

76. *Adjoint sensitivity analysis for uncertain material parameters in frequency-domain 3-D FEM,* J. Harmon, C. Key, D. Estep, T. Butler, and B. M. Notaros, IEEE Transactions on Antennas and Propagation, 69 (2021), 6669-6679.

77. *Learning quantities of interest from dynamical systems for data-consistent inversion,* S. Mattis, K.R. Steffen, T. Butler, C.N. Dawson, and D. Estep, Computer Methods in Applied Mechanics and Engineering, 388 (2022),

78. *The Canadian Statistical Sciences Institute 2003-2022,* M. Thompson, N. Reid and D. Estep, Canadian Journal of Statistics, https://doi.org/10.1002/cjs.11716, 2022.

79. *Error estimation for the time to a threshold value in evolutionary partial differential equations,* J. Chaudhary, D. Estep, T. Giannini, Z. Stevens, and S. Tavener, BIT Numerical Mathematics, DOI 10.1007/s10543-023-00947-1, 2022.

80. *Realizing the Promise of Disaggregated Data and Analytics for Social Justice Through Community Engagement and Intersectoral Research Partnerships,* Kaida A, Anderson J, Barnard C, Bartram L, Bert D, Carpendale S, Dean C, Estep D, Etowa J, Gislason M, Greening G, Hariri M, Hoogeveen D, Israel D, Johal A, Kennedy A, McKenzie K, Mendenhall R, Mourad N, Nicholson V, Nolan K, Osborne Z, Popowich F, Reedman A, Simpson J, Smith J, & Smith M, Engaged Scholar Journal: Community-Engaged Research, Teaching, and Learning 8 (2023), 57-71.

81. *Inverse problems for physics-based models,* D. Bingham, T. Butler and D. Estep, Annual Reviews in Statistics and its Application, to appear

82. *A posteriori error analysis for a space-time parallel discretization of parabolic partial differential equations,* J. Chaudhry, D. Estep, and S. Tavener, Numerical Methods for Differential Equations, to appear

PEER-REVIEWED RESEARCH MONOGRAPHS

1. *Estimating the error of numerical solutions of systems of nonlinear reaction-diffusion equations*, D. Estep, M. Larson and R. Williams, Memoirs of the American Mathematical Society 696 (2000), 1-109

PEER-REVIEWED CONFERENCE PAPERS

1. *Adaptive methods for reaction diffusion problems,* D. Estep, M. Larson and R. Williams, *Proceedings of the 12'th Annual Review of Progress in Applied Computational Electromagnetics*, 1996, 611-618

2. *The formation of shear layers in a fluid with temperature-dependent viscosity,* D. Estep, S. Verduyn Lunel, and R. Williams, *Equadiff 03, International Conference on Differential Equations, Hasselt 2003*, World Scientific, Singapore, 2004

3. *Introducing FACETS, the Framework Application for Core-Edge Transport Simulations,* J. R. Cary, J. Candy, R. H. Cohen, S. Krasheninnikov, D. C. McCune, D. J. Estep, J. Larson, A. D. Malony, P. H. Worley, J. A. Carlsson, A. H. Hakim, P. Hamill, S. Kruger, S. Muzsala, A. Pletzer, S. Shasharina, D. Wade-Stein, N. Wang, L. McInnes, T. Wildey, T. Casper, L. Diachin, T. Epperly, T. D. Rognlien, M. R. Fahey, J. A. Kuehn, A. Morris, S. Shende, E. Feibush, G. W. Hammett, K. Indireshkumar, C. Ludescher, L. Randerson, D. Stotler, A. Yu Pigarov, .P Bonoli, C. S. Chang, D. A. D'Ippolito, P. Colella, D. E. Keyes, R. Bramley, J. R. Myra, *Journal of Physics: Conference Series* 78 (2007), 1-6

4. *First results from core-edge parallel composition in the FACETS project,* J. R. Cary, J. Candy, R. H. Cohen, S. Krasheninnikov, D. C. McCune, D. J. Estep, J. Larson, A. D. Malony, P. H. Worley, J. A. Carlsson, A. H. Hakim, P. Hamill, S. Kruger, M. Mia, S. Muzsala, A. Pletzer, S. Shasharina, D. Wade-Stein, N. Wang, S. Balay, L. McInnes, H. Zhang, T. Casper, L. Diachin, T. Epperly, T. D. Rognlien, M. R. Fahey, J. Cobb, A. Morris, S. Shende, G. W. Hammett, K. Indireshkumar, D. Stotler, A. Yu Pigarovd, *Journal of Physics: Conference Series* 125 (2008), 1-5

5. *A posteriori error analysis of multiscale operator decomposition methods for multiphysics models,* D. Estep, V. Carey, V. Ginting, S. Tavener, T. Wildey, *Journal of Physics: Conference Series* 125 (2008), 1-16

6. *Continuum modeling and control of large mobile networks,* Y. Zhang, E. K. P. Chong, J. Hannig, and D. Estep, *Proceedings of the 49th Annual Allerton Conference on Communication, Control and Computing*, Illinois, 2011, 1670-1677

7. *Adjoint methods for uncertainty quantification in applied computational electromagnetics: FEM scattering examples,* C. Key, A. Smull, B. M. Notaros, D. Estep, and T. Butler, *Proceedings of the 2018 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2018*, March 25–29, 2018, Denver, Colorado, USA

8. *A posteriori element-wise error quantification for FEM solvers using higher order basis functions,* C. Key, A. Smull, D. Estep, T. Butler, and B. M. Notaros, *Proceedings of the 2018 IEEE International Symposium on Antennas and Propagation*, July 8–13, 2018, Boston, MA, USA, pp. 1319–1320

9. *Applications of adjoint solutions for predicting and analyzing numerical error of forward solutions based on higher order finite element modeling,* B. M. Notaros, C. Key, A. Smull, D. Estep, and T. Butler, *Proceedings of the 14th International Workshop on Finite Elements for Microwave Engineering – FEM2018*, September 10-14, 2018, Cartagena de Indias, Colombia, pp. 3–4

10. *Adjoint-based a posteriori error estimation and its applications in CEM: DHO FEM techniques and*

3D scattering problems, J. Harmon, C. Key, B. Troksa, T. Butler, D. Estep, and B. M. Notaros, *Proc. 2019 USNC-URSI National Radio Science Meeting*, January 9-12, 2019, Boulder, Colorado

11. *Adjoint-based uncertainty quantification in frequency-domain double higher-order FEM*, J. Harmon, C. Key, B. M. Notaros, D. Estep, and T. Butler, *Proceedings of the 2019 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2019,* April 15–19, 2019, Miami, Florida, USA

12. *Overview of some advances in higher order frequency-domain CEM techniques,* B. M. Notaros, S. B. Manic, C. Key, J. Harmon, and D. Estep, *Invited Paper*, *Special Session Advances in Frequency-Domain CEM Techniques and Applications*, *21st International Conference on Electromagnetics in Advanced Applications – ICEAA 2019*, September 9-13, 2019, Granada, Spain

13. *Error estimation and uncertainty quantification based on adjoint methods in computational electromagnetics,* B. M. Notaros, J. Harmon, C. Key, D. Estep, and T. Butler, *Invited Paper*, Special Session *Applications of Machine/Deep Learning and Uncertainty Quantification Techniques in Computational Electromagnetics*, *2019 IEEE International Symposium on Antennas and Propagation* and USNC-URSI Radio Science Meeting – AP-S/URSI 2019, July 7–12, 2019, Atlanta, GA

ACADEMIC BOOKS AND BOOK CHAPTERS

1. *Computational Differential Equations*, K. Eriksson, D. Estep, P. Hansbo, and C. Johnson, Cambridge University Press, 1996 (in second printing)

2. *Practical Analysis in One Variable*, D. Estep, Undergraduate Textbooks in Mathematics, Springer-Verlag, 2002 (German Edition, 2004)

3. *Applied Mathematics: Body and Soul*, Volumes I, II, III, K. Eriksson, D. Estep and C. Johnson, Springer-Verlag, 2003 (German Edition, 2004)

4. *Bridging the Scales in Science and Engineering,* Editor J. Fish, Oxford University Press, Ch. 11: *pages 305-387, Error Estimation for Multiscale Operator Decomposition for Multiphysics Problems,* D. Estep, 2010

5. *Building Confidence in Computational Models: The Science of Verification, Validation, and Uncertainty Quantification,* Committee on Mathematical Foundations of Verification, Validation, and Uncertainty Quantification, The National Academies Press, 2012, *Appendix B: Adjoint Operators,* D. Estep.

6. *A Ramble Through Probability: How I Learned to Stop Worrying and Love Measure Theory*, S. Basu, T. Butler, D. Estep, and N. Panda, SIAM, to appear

NON-REFEREED ARTICLES

1. *Boundedness of dispersive difference schemes via a normal form analysis*, D. Estep, *Proceedings of the Third International Conference on Hyperbolic Problems*, 1990

2. *CSE 2009: Graduate Education in CSE - Structure for the Zoo?* H.-J. Bungartz and D. Estep, in SIAM News 42, 2009

3. *Computational Science and Engineering Education: SIAM's Perspective,* H.-J. Bungartz, D. Estep, U. Rude, and P. Turner, IEEE Computing in Science and Engineering 11 (2009), 5-11

4. Interview, SIAM News 43 (2010)

5. *Biotechnology, Statistics, Collaboration, and the Pursuit of the Future,* D. Estep, Hill Times, May 5, 2023.

PUBLIC SOFTWARE

1. *CARDS (Ordinary Differential Equation Solver),* version 3.3, 1994, D. Estep and R. Williams

2. *CARDS (Concurrent Adaptive Reaction-Diffusion Solver),* version 2.0, 1996, D. Estep and R.

Williams

3. *FETkLab (Finite Element Toolkit for solving nonlinear elliptic systems in MATLAB),* 2001-, D. Estep, M. Holst, D. Mikulencak
4. *GAASP (Globally Accurate, Adaptive Sensitivity Package),* 2006-, D. Estep, B. Mckeown, D. Neckels, J. Sandelin

NONACADEMIC BOOKS

I have written and ghostwritten around twelve children books at the early reader level.

CITATIONS (GOOGLE SCHOLAR 9/2023)

5144 Citations; h-index 29; i10-index 70

MASTERS STUDENTS (SIMON FRASER UNIVERSITY)

1. J. Zhu, graduated 2022, currently PhD student in Statistics and Actuarial Science, Simon Fraser University
2. M. Yao, graduated 2022, currently PhD student in Department of Statistical Sciences, University of Toronto
3. Kimberly Kroetch, 2021-2023 (expected graduation)
4. J. Xie, 2021-2023 (expected graduation)

DOCTORAL STUDENTS

1. W. Kuhn, School of Mathematics, Georgia Institute of Technology, 1997, Thesis: *Rigorous and reasonable error bounds for the numerical solution of dynamical systems*
2. M. Larson, Department of Mathematics, Chalmers University of Technology, 1997, Thesis: *Analysis of adaptive finite element methods* (acted as partial advisor with C. Johnson). Currently, Professor in Applied Mathematics at Umea University, Sweden.
3. M. Warner, School of Aerospace Engineering, Georgia Institute of Technology, 1997, Thesis: *Numerical Solutions to Optimal-Control Problems by Finite Elements in Time with Adaptive Error Control* (acted as partial advisor with D. Hodges).
4. D. Mikulencak, School of Chemical Engineering, Georgia Institute of Technology, 2001, Thesis: *Inertial Effects in Dilute Suspensions* (acted as partial advisor with J. Morris). Currently, Research Reservoir Engineer at Shell International Exploration & Production.
5. S. Eastman, Department of Mathematics, Colorado State University, 2005, Thesis: *Analysis and Application of the Nonlinear Power Method. Deceased.* Last position, associate professor at Armstrong Atlantic State University.
6. D. Neckels, Department of Mathematics, Colorado State University, 2005, Thesis: *Variational Methods for Uncertainty Quantification.* Currently, DigitalGlobe.
7. J. Sandelin, Department of Mathematics, Colorado State University, 2006, Thesis: *Global Estimate and Control of Model, Numerical, and Parameter Error.* Retired from GeoEye, Inc.
8. T. Wildey, Department of Mathematics, Colorado State University, 2007. Thesis: *A Posteriori Analysis of Operator Decomposition on Interface Problems.* Currently, Principle Member of Technical Staff, Sandia National Laboratories, Albuquerque.
9. S. Lee, Department of Mathematics, Colorado State University, 2008. Thesis: *An Adaptive Algorithm for an Elliptic Optimization Problem, and Stochastic-Deterministic Coupling: A Mathematical Framework,* Currently, Professor, Engineering and Applied Mathematics, Viterbo University.
10. T. Butler, Department of Mathematics, Colorado State University, 2009. Thesis: *Computational Measure Theoretic Approach to Inverse Sensitivity Analysis: Methods and Analysis.* Currently, associate professor, University of Colorado Denver

11. M. Buzby, Department of Mathematics, Colorado State University 2009. Thesis: *Short Time Analysis of Deterministic ODE Solutions and the Expected Value of a Corresponding Birth-Death Process.* Currently, associate professor, Department of Mathematics, University of Alaska Southeast.

12. W. Newton, Department of Mathematics, Colorado State University, 2011, *A Posteriori Error Estimates for the Poisson Problem on Closed, Two-Dimensional Surfaces.* Currently, Senior Data Scientist at Syntellis Performance Solutions

13. N. Burch, Department of Mathematics, Colorado State University, 2011, *Probabilistic Foundation of Nonlocal Diffusion and Formulation and Analysis for Elliptic Problems on Uncertain Domains.* Currently, Predictive Modeler at Auto-Owner Insurance

14. B. Bugbee, co-advisor (Advisor, J. Breidt), Department of Statistics, Colorado State University, 2015. *Semiparametric Regression in the Presence of Complex Variance Structures Arising from Small Angle X-Ray Scattering Data.* Currently, Oracle Data Cloud Audience Modeling

15. L. Yang, Department of Statistics, Colorado State University, 2018. *Infinite Dimensional Stochastic Inverse Problems*. Currently, Nanostring Technology, Inc.

16. C. Vollmer, Department of Statistics, Colorado State University, 2019. *Statistical Upscaling of Stochastic Forcing in Multiscale, Multiphysics Modeling*, Currently, Sandia National Laboratories

17. J. Chi, Department of Statistics, Colorado State University, 2021. *Sliced Inverse Approach and Domain Recovery For Stochastic Inverse Problems*. Currently, Sanofi Inc.

18. Y. Liu, Department of Statistics and Actuarial Science, Simon Fraser University, in progress

19. J. Zhu, Department of Statistics and Actuarial Science, Simon Fraser University, in progress

20. H. Shi, Department of Statistics and Actuarial Science, Simon Fraser University, in progress

POSTDOCS AND RESEARCH SCIENTISTS

1. M. Laforest, 2002. Professor, Montreal Polytechnique

2. A. Malqvist, 2007. Professor, Chalmers University, Sweden

3. V. Ginting, 2007. Professor, University of Wyoming

4. D. Lockwood, 2007. Instructor, Colorado State University.

5. D. Pham, 2009, Du Pham, lecturer, UC Davis

6. H. Wang, 2009

7. J. Sandelin, 2010. GeoEye, Inc.

8. M. Presho, 2011. Assistant professor, Southeast Missouri State University

9. V. Carey, 2012. Computational Scientist at Theodon Consulting

10. T. Butler, 2013. Associate professor, University of Colorado at Denver

11. J. Collins, 2014. Assistant professor, University of Mary Washington

12. J. Hameed, 2014. Assistant professor, University of New Mexico

13. B. Sheehan, 2014. Teaching assistant professor, University of Reno

14. R. Mckeown, 2015. Senior Software Engineer at Mcfarland Technology

15. W. Newton, 2016. Senior Data Scientist at Syntellis Performance Solutions

16. N. Panda, 2017. Scientist, Los Alamos National Laboratory.

17. S. Matthis, 2020. Senior Engineer, Naval Nuclear Laboratory.

18. S. Basu, in progress

19. F. Yazdi, in progress

INVITED SHORT COURSES AND MINITUTORIALS

7/04   *A Short Course on Duality, Adjoint Operators, Green's Functions, and A Posteriori Error Analysis,* Sandia National Laboratories, Albuquerque, New Mexico

4/07   *Duality, Adjoint Operators, and Uncertainty in a Complex World,* 4th Montreal Scientific Computing Days, University of Montreal, Montreal, Canada

3/14   *A Posteriori Error Estimates for Statistical Computations with Differential Equations with Stochastic Parameters,* SIAM Conference on Uncertainty Quantification, Savannah, Georgia

7/15   *Minitutorial on adjoint based a posteriori error estimation,* Rocky Mountain Summer Workshop on Uncertainty Quantification, University of Colorado Denver

6/16   *Short course on a new approach to stochastic inverse problems for scientific inference,* Rocky Mountain Mathematics Consortium Summer Workshop, 2016

11/16   *Short course on a new approach to stochastic inverse problems for scientific inference,* Computational Mathematics, Department of Mathematical Sciences, Chalmers University of Technology, Gothenburg, Sweden

1/17   *Short Course on Duality, Adjoints, and A Posteriori Error Estimation,* Wright Patterson Air Force Base, Dayton, Ohio

INVITED TALKS AT CONFERENCES AND WORKSHOPS

7/92   *LMS Symposium on Evolutionary Problems*, University of Durham, England

6/95   *HBK70: Conference in Honor of H. Keller*, California Institute of Technology

8/95   *American Mathematical Society Summer Conference*, Park City, Utah

3/96   *12'th Annual Review of Progress in Applied Computational Electromagnetics*, Naval Postgraduate School

6/96   *International Conference on Differential Equations and Dynamical Systems*, Missouri State University

4/97   *A.M.S. Regional Meeting: Special Session on Numerical Solutions of Differential Equations*, University of Maryland

11/97   *Dynamics of Algorithms*, I.M.A., University of Minnesota

3/98   *Mittag-Leffler Seminar*, Mittag-Leffler Institute, Sweden

3/98   *Workshop on Adaptive Methods for Differential Equations*, Royal Institute of Technology, Sweden

11/98   *Adaptive Finite Element Methods for Optimization* '98, University of Heidelberg

5/00   *Finite Elements in Fluid Problems 2000 Conference,* University of Texas at Austin

12/01   *Computational Challenges in Dynamical Systems,* Fields Institute, Canada

9/02   *International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE 2002),* Alicante, Spain, *Plenary Address*

11/02   *A.M.S. Regional Meeting, Special Session on Numerical Methods for Differential Equations,* Orlando, Florida

7/03   *Seventh U.S. National Congress on Computational Mechanics,* Albuquerque, New Mexico

3/04   *Emerging Methodologies and Applications in Numerical PDEs*, Florida State University

3/04   *Self-Adaptive Methods in PDEs,* Oberwohlfach, Germany, *Survey Lecture*

3/04   *Multi-physics Solution Methods,* Copper Mountain Conference on Iterative Methods

12/04   *CSRI Workshop on Multiscale Mathematics,* Sandia National Laboratories

2/05   *Symposium on A Posteriori Error Estimation Methods for Large-Scale Problems*, SIAM Conference on Computational Science and Engineering, Orlando, Florida

2/05   *Symposium on Innovative Time Integration Methods for Scientific Simulations, SIAM Conference on Computational Science and Engineering,* Orlando, Florida

4/05	*Workshop on Finite Element Modeling and Large Scale Calculations*, U.S. Army Engineer Research and Development Center, Vicksburg
6/05	*Third M.I.T. Conference on Computational Fluid and Solid Mechanics,* Massachusetts Institute of Technology, *Keynote Lecture*
6/05	*International Conference on Computational and Mathematical Methods in Science and Engineering,* Alicante, Spain, *Keynote Lecture*
7/05	*Foundations of Computational Mathematics,* Santander, Spain, *Semi-Plenary Lecture*
1/06	*Numerical Simulation of Flow in Porous Media, Joint Mathematics Meetings,* San Antonio, Texas
1/06	*Preparing Mathematics Students for Interdisciplinary Research, Joint Mathematics Meetings,* San Antonio, Texas
2/06	*Workshop on Computational Homology and Material Science,* Georgia Tech
8/06	*Junior Faculty Forum,* National Center for Atmospheric Research
9/06	*International Conference on Computational and Mathematical Methods in Science and Engineering,* Madrid, Spain, *Plenary Lecture*
2/07	*SIAM Conference on Computational Science and Engineering, Minisymposium on A Posteriori Error Estimation and Adaptivity in Computational Science and Engineering*
3/07	*14th International Finite Elements in Flow Problems Conference,* Santa Fe, New Mexico
8/07	*Sandia CSRI Workshop on Mathematical Methods for Verification and Validation,* Albuquerque, New Mexico
9/07	*Management of Numerical Errors In Nuclear Systems Modeling,* Idaho National Laboratory and North Carolina State University, North Carolina
7/08	*SIAM Annual Meeting, Minisymposium on Recent Advances on A Posteriori Error Estimation and Adaptive Error Control* and *Minisymposium on Advances in Uncertainty Quantification*
7/08	*SCIDAC 2008,* Seattle, Washington, *Plenary Address*
7/08	*Uncertainty Analysis in Complex, Multiphysics Applications, PSAAP University Alliance Center,* Stanford University
9/08	*Workshop on Mathematical and Computational Issues in the Solid Earth Geosciences,* Computational Infrastructure for Geosciences, Santa Fe
1/09	*Finite Element Methods in Engineering and Science,* Lake Tahoe, *Plenary Speaker*
2/09	*Pikes Peak Regional Undergraduate Mathematics Conference (PPRUMC), Keynote Speaker*
4/09	*Computational Science and Engineering (CSE) Annual Research Symposium,* University of Illinois, Urbana-Champaign, *Keynote Speaker*
7/09	*SIAM Annual Meeting, Minisymposium on Predictive Computational of Multiscale-Multiphysics Applications*, Denver
8/09	*Workshop on Simulating the Spatial-Temporal Patterns of Anthropogenic Climate Change,* Los Alamos Institute for Advanced Studies, Santa Fe, New Mexico
11/09	*Adaptive and Multilevel Methods for Partial Differential Equations*, University of California San Diego
3/11	*SIAM Computational Science and Engineering Conference, Minisymposia on Numerical Discretization Error Estimation for Uncertainty Quantification, Progress in Computational Methods and Software for Tightly-coupled Multiphysics Applications, Numerical Methods for Stochastic Computation and Uncertainty Quantification, Numerical Challenges in Microstructure Modeling for Materials Science*, Reno, Nevada
8/11	*ICiS Workshop on Multiphysics Simulations: Challenges and Opportunities,* Park City, Utah, *Plenary Speaker*
5/12	*Uncertainty Quantification for High-Performance Computing Workshop,* Oak Ridge National Laboratory

7/12	*6th International Conference on Automatic Differentiation,* Fort Collins, CO

7/12   *6th International Conference on Automatic Differentiation,* Fort Collins, CO

8/12   *Joint Statistical Meetings,* Invited Papers, Uncertainty Quantification at SAMSI

5/13   *Workshop on Reduced Order Modeling in General Relativity,* Caltech, *Plenary Talk*

7/14   *SIAM Annual Meeting, Invited Talk*

12/15   *Fisk Distinguished Lecture,* Department of Mathematics, University of Wyoming

2/16   *Research Collaboration Workshop: Optimization and Uncertainty Quantification in Energy and Industrial Applications,* Institute for Mathematics and its Applications, University of Minnesota, *Invited Talk*

1/17   *Mathematics for Measurement,* International Centre for Mathematical Sciences, Edinburgh, Scotland, *Keynote Talk*

6/17   *27th Biennial Conference on Numerical Analysis,* University of Strathclyde, Glasgow, Scotland, *Plenary Talk*

10/17   *SIAM Central States Section Meeting*, Colorado State University, Fort Collins, *Plenary Talk*

10/19   *NSF Computational Mechanics Vision Workshop,* Ann Arbor, *Invited Talk*

8/22   *Experiments in Collaborative Research in Statistical Sciences,* Joint Statistical Meetings, American Statistical Association, paper presenter and panelist

9/22   *What is Data Science Panel,* CANSSI Ontario Research Day, invited participant

SEMINARS AND COLLOQUIA

2/87	University of New Mexico	2/04	Sandia National Laboratories
2/87	Georgia Institute of Technology	10/04	ICES, University of Texas
6/88	Chalmers University of Technology	1/05	National Center for Atmos. Research
6/89	Chalmers University of Technology	2/05	University of Maryland
11/89	Emory University	3/05	CIRA, Colorado State University
5/90	Chalmers University of Technology	4/05	Tufts University
3/91	Lawrence Livermore National Laboratory	11/05	University of Minnesota
3/91	University of Chicago	11/05	Los Alamos Laboratory
5/91	Chalmers University of Technology	12/05	University of California at San Diego
6/91	University of Hanover	2/06	Florida State University
1/92	California Institute of Technology	4/06	University of Tennessee at Knoxville
5/92	Stanford University	4/06	University of Delaware
11/92	California Institute of Technology	11/06	North Carolina State University
2/93	Temple University	11/06	University of North Carolina
2/93	Virginia Polytechnic Institute	4/07	University of Texas at Austin
3/93	University of South Carolina	8/07	Idaho National Laboratory
4/93	Swedish Royal Institute of Technology	10/07	Lawrence Livermore National Laboratory
4/93	Chalmers University of Technology	12/07	Columbia University
5/93	University of Cincinnati	2/08	Natural Resource Ecology Laboratory
2/94	University of California at Los Angeles	2/08	Rensselaer Polytechnic Institute
4/94	Oxford University	9/08	University of Colorado at Boulder
4/94	Cambridge University	12/08	Idaho National Laboratory
5/94	Chalmers University of Technology	9/09	University of Wyoming
8/94	Chalmers University of Technology	12/09	Lawrence Livermore National Laboratory
9/94	Swedish Royal Institute of Technology	1/10	Atmospheric Sciences, CSU

11/94	University of Maryland, College Park	2/10	University of Wisconsin
2/95	Tufts University	3/10	Brown University
8/95	Chalmers University of Technology	3/10	University of Chicago
11/96	North Carolina State University	8/10	Sandia National Laboratory
12/96	California Institute of Technology	9/10	Lawrence Livermore National Laboratory
12/96	Chalmers University of Technology	9/10	Purdue University
10/97	Bell Labs, Lucent Technology	11/10	North Carolina State University
12/97	University of California at Irvine	1/11	Lawrence Livermore National Laboratory
5/98	Tufts University	3/11	University of Southern California
3/99	Oxford University	11/11	University of Chicago
3/99	Centrum voor Wiskunde en Informatica	3/12	Florida State University
4/99	California State University at Chico	4/12	Colorado School of Mines
4/99	California Institute of Technology	4/12	SAMSI
4/99	University of California at Los Angeles	11/14	Chalmers University of Technology
10/99	University of Colorado at Boulder	1/14	Chalmers University of Technology
10/99	Colorado State University	3/14	KTH Royal Institute of Technology
11/99	University of Maryland, College Park	3/14	Chalmers University of Technology
1/00	Duke University	9/14	University of Colorado Boulder
11/00	University of Colorado at Denver	10/15	Ohio State University
2/01	Colorado School of Mines	6/17	University of North Carolina
2/01	University of California at San Diego	12/17	University of California San Diego
1/00	North Carolina State University	11/18	Simon Fraser University
2/00	Colorado State University	10/19	University of New Brunswick
3/00	University of California at San Diego	11/19	CRM, Université du Québec à Montréal
4/00	Tufts University	3/20	Wilfrid Laurier University
4/01	Sandia National Laboratories	10/20	University of Victoria
9/00	Chalmers University of Technology	12/20	University of Alberta
10/00	Georgia Institute of Technology	12/21	Queen's University
10/05	Penn State University	10/22	University of Sherbrooke
2/01	Lawrence Livermore National Laboratory	10/22	Laval University
5/01	Cambridge University	11/22	University of Alberta
9/01	Sandia National Laboratories	11/22	MacEwan University
11/01	University of Colorado at Boulder	11/22	SFU/UBC Joint Seminar
1/03	University of Minnesota	11/23	University of Michigan
12/05	University of California at San Diego		
2/06	Florida State University		
4/06	University of Tennessee at Knoxville		

RESEARCH FUNDING (AWARDED)

1993-95	National Science Foundation, Division of Mathematical Sciences, $37,132, principal investigator, *Adaptive numerical methods for singularly-perturbed reaction-diffusion equations*
1993-95	National Science Foundation, $38,696, principal investigator, *International Research Fellow*
1995-98	National Science Foundation, Division of Mathematical Sciences, $57,000, principal investigator, *Computational error estimation and adaptive error control for numerical methods for differential equations*
1995	National Science Foundation, Division of Mathematical Sciences, $8,200, co-principal investigator, *Georgia Tech Conference on Dynamical Numerical Analysis*
1995	Institute for Mathematics and Its Applications, $4,000, co-principal investigator, *Georgia Tech Conference on Dynamical Numerical Analysis*
1997-99	North Atlantic Treaty Organization, $4,000, co-principal investigator, *Investigations of systems of reaction diffusion equations*
1998-01	National Science Foundation, Division of Mathematical Sciences, $78,400, principal investigator, *Computational error estimation and adaptive error control for numerical methods for differential equations*
2000	Institute for Mathematics and Its Applications, $4,000, co-principal investigator, *Southeastern Conference on Applied Mathematics*
2001	National Science Foundation, Division of Mathematical Sciences, $12,600, co-principal investigator, *Workshop on the Preservation of Stability under Discretization*
2001	International Business Machines, Inc., Shared University Research Program Grant Program, $197,498, co-author of original proposal submitted to I.B.M. partner organization,
2001-05	National Science Foundation, Division of Mathematical Sciences, $182,122, principal investigator, *Computational error estimation and adaptive error control for multi-scaled differential equations*
2001	National Science Foundation, Division of Mathematical Sciences, $23,310, co-principal investigator, *Intermountain/Southwest Conference on Industrial and Interdisciplinary Mathematics*
2001-03	Sandia Corporation, $36,611, principal investigator, *High resolution methods for ALEGRA*
2003-09	National Science Foundation, IGERT Program, $3,261,000, principal investigator, principal co-author of pre-proposal and proposal, *PRIMES: Program for Interdisciplinary Mathematics, Ecology, and Statistics*
2003-08	United States Department of Agriculture, $75,702, principal investigator, *Population genetic analyses to preserve genetic resources of crops*
2003-08	National Aeronautics and Space Administration, $1,400,000, co-principal investigator, *Carbon data assimilation modeling: remote sensing and field observational constraints of earth system carbon analysis*
2004	Sandia Corporation, $49,913, principal investigator, *A posteriori analysis and adaptive error control for operator splitting methods for partial differential equations*
2004-09	National Science Foundation, Mathematical and Statistical Tools for Understanding Complex Systems in the Environment, $499,989, principal investigator, *Novel a posteriori analysis of ecological models: the carbon cycle*
2004-09	Department of Energy, Office of Science, $940,972, principal investigator, *A posteriori analysis of interface effects in the discretization of multi-scaled and multi-physics problems by decomposition techniques*
2005-06	National Science Foundation, Division of Mathematical Sciences, $16,650, co-principal investigator, *Workshop on Geometry and Symmetry in Numerical Computation*

2005-09   Department of Energy, Office of Science, $2,300,000 (CSU portion $214,000), principal investigator, *A mathematical analysis of atomistic-to-continuum (AtC) multiscale coupling methods*

2007-12   Department of Energy, Office of Advanced Scientific Computing Research and Office of Fusion Energy Sciences, $11,000,000 (CSU portion $480,000), co-investigator, *FACETS*

2007-10   National Science Foundation, Power, Controls and Adaptive Networks, Division of Electrical, Communications and Cyber Systems, $276,833, co-principal investigator, *Partial differential equation models for large networks*

2007-10   National Science Foundation, Division of Mathematical Sciences, $300,000 (CSU portion $148,000), principal investigator, *Finite element methods for discretizing geometric PDEs with nonlinear constraints and gauge freedom*

2007-12   National Science Foundation, Division of Biological Sciences, $903,000, co-principal investigator, *Towards a flexible and extendable scientific undergraduate experience (FEScUE): Blending mathematics and the life sciences*

2007-09   Idaho National Laboratory, Battelle Energy Alliance, LLC, $249,253, principal investigator, *Adaptive modeling of geometrically complex fuel rods*

2008   Lawrence Livermore National Laboratory, $25,000, principal investigator, *A Posteriori Error Calculation of hydrodynamics simulations using adjoint methodologies*

2009-12   Defense Threat Reduction Agency, $432,000, principal investigator, *A Posteriori Error Analysis and uncertainty quantification for adaptive multiscale operator decomposition methods for multiphysics problems*

2009-11   Department of Energy, Office of Science, $660,500 (CSU portion: $226,000), principal investigator, *Collaborative Proposal: Transforming how climate system models are used: a global, multi-resolution approach to regional ocean modeling*

2009   Lawrence Livermore National Laboratory, $30,894, principal investigator, *A Priori and A Posteriori analysis of smoothed particle hydrodynamics-finite element methods for pore-scale simulations*

2010-13   Lawrence Livermore National Laboratory, $391,870, principal investigator, *Adjoint-based methods for uncertainty quantification*

2010-14   National Institutes of Health, $1,229,249, co-principal investigator, *The inverse problem for estimation of structure of biological macromolecules from small-angle X-Ray scattering*

2010-13   Department of Energy, Office of Science, $1,563,784 (CSU portion: $307,425), principal investigator, *Enabling Predictive simulation and UQ of complex multiphysics PDE systems by the development of goal-oriented variational sensitivity analysis and a-posteriori error estimation methods*

2010-14   National Science Foundation, Division of Mathematical Sciences, $160,000 (CSU Portion: $80,000), co-principal investigator, *Collaborative Research: A posteriori error analysis and adaptivity for discontinuous interface problems*

2011   Multiscale Design Systems, LLC through Air Force SBIR Phase II, CSU subcontract: $90,000, principal investigator

2011-14   Idaho National Laboratory, Battelle Energy Alliance, LLC, $249,253, principal investigator, *Uncertainty analysis for multiscale models of nuclear fuel performance*

2011-12   Statistics and Applied Mathematical Sciences Institute, Duke University, $43,200, principal investigator, *Memorandum of Understanding*

2011-16   National Science Foundation, Division of Mathematical Sciences, $1,126,000 (CSU Portion: $288,000), principal investigator, *FRG: error quantification and control for gravitational waveform simulation*

2011-16	Department of Energy, Nuclear Energy University Programs, $1,098,250, principal investigator, *11-2031: Multiscale modeling and uncertainty quantification for nuclear fuel performance*
2012-16	National Science Foundation, Division of Mathematical Sciences, $550,000 (CSU Portion: $145,777), principal investigator, *Data-driven inverse sensitivity analysis for predictive coastal ocean modeling*
2012-18	Department of Energy, Office of Science, $12,500,000 (CSU Portion $1,000,000), co-principal investigator, *DiaMonD: An integrated multifaceted approach to mathematics at the interfaces of data, models, and decisions*
2014-15	Dynamics Research Corporation, $205,619, principal investigator, *Uncertainty Quantification for HPCMP CREATE*
2016-21	Riverside Research Organization, $744,882, principal investigator, *Development of Uncertainty Quantification and Design Approaches and Solutions*
2017-20	National Science Foundation, Division of Mathematical Sciences, $312,062 (CSU Portion: $211,902), co-principal investigator, *Collaborative Research: A posteriori Error Analysis for Complex Models with Applications to Efficient Numerical Solution and Uncertainty Quantification*
2018-23	USDA, Forest Service, $112,506, principal investigator, *Cooperative Research in Ecological Statistics*
2018-21	National Science Foundation, Division of Mathematical Sciences, $356,000 (CSU Portion: $81,000), principal investigator, *Collaborative Research: Construction and analysis of numerical methods for stochastic inverse problems with application to coastal hydrodynamics*
2018-21	National Science Foundation, Division of Mathematical Sciences, $260,000 (CSU Portion: $180,000), co-principal investigator, *Collaborative Research: Efficient coupling of multilevel PDE solvers and advanced sampling methods*
2020-25	National Sciences and Engineering Research Council, Discovery Grant Program, $185,000, principal applicant, *Tools for the investigation of stochastic multiphysics models*
2020-27	National Sciences and Engineering Research Council, Canada Research Chair, $1,400,000, *Computational Probability and Uncertainty Quantification*
2021-22	National Sciences and Engineering Research Council, Collaborative and Thematic Resources Support in Mathematics and Statistics and Discovery Institutes Support Bridge Year Program, $1,028,910, principal applicant, *Canadian Statistical Sciences Institute*
2021-23	Canada's Digital Technology Supercluster, $13,503,225 (Statistics portion $240,000), co-principal applicant, *Earth X-ray for Low-Impact Mining,* including Mathematics of Information Technology and Complex Systems (MITACS) Elevate, $716,000.
2021-23	Public Health Agency of Canada and National Sciences and Engineering Research Council, Emerging Infectious Disease Modeling Initiative, $2,500,000 (no support), *CANMOD – Canadian Network for Modeling Infectious Disease.* Co-applicant.
2021-26	UNESCO International Geosciences, Programme IGCP 725 *Forecasting coastal change*. Co-applicant.
2022-28	National Sciences and Engineering Research Council, Discovery Institutes Support, $5,768,740, applicant, *Canadian Statistical Sciences Institute*

CONFERENCES ORGANIZED

1995	*Georgia Tech Conference on Dynamical Numerical Analysis*, with L. Dieci
1996	*Georgia Tech Workshop on Computation*, with S. Jin
1997	*CBMS Regional Conference on the Theory of Shock Waves*, with S. Jin

1999	*Minisymposium on Numerical Methods for Multiscale Differential Equations*, SIAM Annual Meeting, with S. Jin
2001	*Workshop on the Preservation of Stability under Discretization*, with S. Tavener
2001	*Southeast Conference on Applied Mathematics*, with P. Gremaud, J. Pelesko, H. Tran
2002-4	*Annual Intermountain/Southwest Conference on Interdisciplinary and Industrial Mathematics,* with D. Armbruster, E. Stone, S. Tavener
2003	*PRIMES Workshop on Data Model Fusion,* with R. Davis
2004	*PRIMES Summer Workshop*
2005	*Educational Challenges and Innovations in Applied, Interdisciplinary, and Computational Mathematics,* Invited Minisymposium, *SIAM Annual Meeting*
2005	*Workshop on Geometry and Symmetry in Numerical Computation,* with C. Peterson, A. Sommese, S. Tavener
2006	*International Conference on Computational and Mathematical Methods in Science and Engineering,* Madrid, Spain
2007	*SIAM Conference on Computational Science and Engineering* invited minisymposium on *Graduate Education in Computational Science and Engineering*.
2007	*CSU Workshop on Small Angle X-ray Scattering in Biological Sciences,* with K. Luger and M. van der Woerd, Colorado State University
2008	*CSU Symposium on Imaging,* with O. Emanouilov, M. Kirby, and J. Mueller, Colorado State University
2008	*SIAM Annual Meeting,* invited minisymposium on *Computational Solution of Multiphysics Problems*, 6 sessions
2009	*SIAM Conference on Computational Science and Engineering,* invited minisymposium on *Graduate Education in Computational Science and Engineering – Needs, Trends, Risks, and Chances*
2009	*SIAM Annual Meeting, Organizing Committee*
2009	*Emerging Methods in Inverse Problems,* with J. Mueller, Colorado State University
2011	*SAMSI-Sandia Summer School on Uncertainty Quantification,* 2011, co-organizer with Jim Stewart, Sandia
2011	*Workshop on Working with Uncertainty, IEEE VisWeek 2011*, Program Committee
2011-12	*SIAM/ASA/USACM Conference on Uncertainty Quantification,* Co-chair
2016	*Workshop on Uncertainty Quantification,* Mittag-Leffler Institute, Stockholm, Sweden
2018	*Workshop on UQ for Inverse Problems in Complex Systems,* Isaac Newton Institute, Cambridge, United Kingdom, Principal Organizer
2019-20	*SIAM Conference on Uncertainty Quantification,* Program Committee
2021-23	*Annual CANSSI Showcase*

BOOKS EDITED

1. *Proceedings of the Georgia Tech Conference on Dynamical Numerical Analysis*, L. Dieci, D. Estep, E. Van de Velde, eds, Numerical Algorithms 14, 1997

2. *Collected Lectures on the Preservation of Stability under Discretization*, D. Estep and S. Tavener, Eds, SIAM, Philadelphia, 2002.

BOOKS REVIEWED

1. *Accuracy and Stability of Numerical Algorithms*, N. Highham, SIAM Review 45, 2003
2. *Mathematical Analysis: Approximation and Discrete Processes*, M. Giaquinta and G. Modica, SIAM Review, 47, 2005.
3. *Metric Spaces*, Satish Shirali and Harkrishan Vasudeva, SIAM Review 49, 2007

- Referee for AIAA Journal of Guidance, Control, and Dynamics, Applicable Analysis, Applied Mathematics Letters, Applied Numerical Mathematics, BIT, Computer Methods in Applied Mechanics and Engineering, Computers & Mathematics with Applications, Computers and Structures, Communications in Numerical Methods in Engineering, IMA Journal on Numerical Analysis, International Journal of Mathematics and Mathematical Sciences, International Journal of Numerical Methods in Engineering, International Journal for Multiscale Computational Engineering, International Journal on Uncertainty Quantification, Journal of Applied Mathematics and Computing, Journal of Complexity, Journal of Computational and Applied Mathematics, Journal of Computational Mathematics, Journal on Computational Physics, Journal of Differential Equations, Journal of Microelectromechanical Systems, Mathematical Modeling and Numerical Analysis, Mathematical Models and Methods in Applied Science, Mathematics of Computation, Numerical Algorithms, Numerical Linear Algebra with Applications, Numerische Mathematik, Numerical Methods for Partial Differential Equations, RAIRO Modélisation Mathématique et Analyse Numérique, SIAM Journal on Numerical Analysis, SIAM Journal on Scientific Computing, SIAM Journal on Uncertainty Quantification, Transactions on Mathematical Software

- Reviewer for the National Science Foundation, Department of Energy, Army Research Office, Engineering and Physical Sciences Research Council of Great Britain, Council of Physical Sciences of the Netherlands Organization for Scientific Research, and the Deutsche Forschungsgemeinschaft

- 23 Review Panels for the National Science Foundation and Department of Energy, including CAREER, FRG, IGERT, RTG, IGMS, and ITR Programs

- Ph.D. Thesis Opponent for Johan Ivarsson, Department of Mathematics, Chalmers University of Technology, Sweden, 2001

- Reviewer, 2001 Distinguished Research Prize, Kuwait Foundation for the Advancement of Science

- Review Panel, 2003 Applied Mathematical Sciences, Department of Energy

- Reviewer, 2003 Utah State University Community-University Research Initiative Grant

- Referent for the Ph.D. thesis of Bart van de Rotten, Department of Mathematics, University of Leiden, 2003

- Review Panel, 2005 Fusion Simulation Project, Department of Energy

- Mathematics Review Panel, 2008, Texas Advanced Research Grants Program

- Review Panel, 2008, Fusion Simulation Prototype Centers, Department of Energy

- *Proposed Graduate Program in Computational Science at University of Texas at El Paso,* 2008. Review Committee for the Texas Higher Education Coordinating Board

- *University of California San Diego Interdisciplinary Graduate Program in Computational Science, Mathematics, and Engineering,* 2009. Proposal review

- Mathematics Review Panel, *Norman Hackerman Advanced Research Program,* Texas, 2009

- Reviewer, 2010, Fusion Simulation Prototype Centers, Department of Energy

- Reviewer, 2011, King Abdullah University of Science and Technology (KAUST) Strategic Research Initiative (SRI) program, Center Proposals

- Member, Sandia Computing and Information Sciences Review Panel, 2012-2015

- Panelist, Clusters of Excellence in Engineering Sciences, Deutsche Forschungsgemeinschaft, 2018

- Panelist, National Research Data Infrastructures (NFDI), Deutsche Forschungsgemeinschaft, 2019

- Panelist, National Research Data Infrastructures (NFDI), Deutsche Forschungsgemeinschaft, 2020

- Chair of Site Visit Team, National Science Foundation, Harnessing the Data Revolution, 2023

OTHER PROFESSIONAL SERVICE

- Co-Organizer, Second DOE Workshop on Multiscale Mathematics, 2004 Co-editor and co-author for final report

- Panel Co-Leader, *Panel on Validation, Verification, Uncertainty Analysis and Decision Optimization, Department of Energy Computational Subsurface Sciences Workshop,* 2007. Coordinator for Priority Research Direction report "Uncertainty Representation, Uncertainty Propagation, and Sensitivity Analysis for Subsurface System". Contributor on two other Priority Research Direction reports.

- Breakout Lead and Report co-author, *Uncertainty Quantification/Stochastic Systems*, *Department of Energy Cross-Cutting Technologies for Computing at the Exascale,* 2010

- Invited participant, *Fusion Simulation Program Definition Workshop,* 2011

- Co-Author, *Proposal to establish a SIAM/ASA Journal on Uncertainty Quantification,* (with J. Berger and M. Gunzburger). Initially submitted to SIAM in 2010 and ASA in 2011, approved by ASA and SIAM in 2012.

- Co-Author, *Fostering Interactions Between the Geosciences and Mathematics, Statistics, and Computer Science,* Technical Report TR-2012-02, Department of Computer Science, University of Chicago, 2012

- Co-Author, *Multiphysics Simulations: Challenges and Opportunities*, Tech. Report ANL/MCS-TM-321, Argonne National Laboratory, 2011

- Panel Chair, Beyond Interpretive Simulations, *Fusion Energy Sciences and Advanced Scientific Computing Research Workshop on Integrated Simulations for Magnetic Fusion Scienc*es. Co-Author of Workshop Report. Department of Energy Office of Sciences, 2015

- Participant, Department of Energy Office of Science *Study Group on Large Center Type Investment Mechanisms in Applied Mathematics*, 2016

- Participant, Workshop Report, Computational Mechanics Vision and Future Challenges Workshop, National Science Foundation, Ann Arbor, Michigan, 2020

- Panelist, An Ecosystem of Innovation, Data Science Nexus Conference, University of Manitoba, 2019

HIGHLIGHTS OF SERVICE AT GEORGIA INSTITUTE OF TECHNOLOGY

1989-00	External member, numerous Ph.D. committees for students from engineering and science
1997-98	Junior Promotions and Tenure Committee, School of Mathematics, Georgia Tech
1998-00	Hiring Committee, School of Mathematics, Georgia Tech
1998-00	First Director of Teaching Effectiveness, School of Mathematics, Georgia Tech (Created and coordinated adoption of the School's teaching development and evaluation policy for untenured faculty)

HIGHLIGHTS OF COLORADO STATE UNIVERSITY SERVICE

2000-	External member, numerous Ph.D. committees for students from engineering and science, Georgia Tech and Colorado State University
2001	College of Natural Sciences, Research and Graduate Education Committee, Colorado State University
2002	Representative for the Department of Mathematics on the Search Committee for the Dean of the College of Natural Sciences of Colorado State University
2002	Virtual College of Information Sciences and Technology Strategic Planning Committee, chief author of the Research Plan, Colorado State University
2001-03	Designed and coordinated adoption of a new qualifying process for Ph.D. candidacy, Department of Mathematics, Colorado State University

2003	Chair of the Research Advisory Council and member of the Executive Committee, Information Science & Technology Center, Colorado State University
2003-09	Co-Director, Program for Interdisciplinary Mathematics, Ecology, and Statistics, Colorado State University
2003-06	Faculty Advisor, Colorado State University Rams Cycling Team, given the USA Cycling 2003 and 2007 Collegiate Cycling Team of the Year Award. Helped establish scholarship endowment fund.
2004-05	Hiring Committee, Department of Mathematics
2005	Graduate Curriculum Reform Committees for Applied Mathematics and Partial Differential Equations
2006-20	Director, Center for Interdisciplinary Mathematics and Statistics
2006-09	Graduate Committee, Department of Mathematics
2007-20	University Committee on Faculty Governance (Chair, 2009-2011, 2012-)
2007-10	Committee for Senior Promotion, Department of Mathematics
2008-10	Executive Committee, Department of Mathematics
2008-10	Associate Chair, Department of Mathematics
2008-9	Department Review Committee, Department of Mathematics
2009-10	Space Committee, Department of Mathematics
2010	Goals Committee, Department of Mathematics
2010	Department of Atmospheric Science University Review Committee
2010	University Review Committee for Oliver P. Pennock Distinguished Service Award
2010-11	Advisory Board for the Short Grass Steppe Research Innovation Center
2010	External Advisory Committee for NSF IGERT MAS BioEnergy Program
2010	University Search Committee for Associate Director of Sponsored Programs
2010	University Search Committee for Export Control Officer
2010	Council of Research Deans Committee on Interdisciplinary Issues in P&T
2010 -	Graduate Student Committee, Department of Statistics
2010 -15	Promotion and Tenure Committee, Department of Statistics (Chair 2014-15)
2010-18	Award Nomination Committee, Department of Statistics
2011	Review Committee, Research Infrastructure: Core and Specialized Facilities
2011-12	Department Code Review Committee, Department of Statistics
2011-12	Organizing Committee, CSU Research Colloquium
2014	Scholarship Impact Award Committee
2014-20	PROPEL Committee, Office of VPR
2014-16	Associate Chair of Graduate Studies, Department of Statistics
2015	Review Committee, VPR Interdisciplinary Awards
2015	Scholarship Impact Award Committee
2015-16	Department Review Committee, Department of Statistics
2016	University Review Committee, Department of Electrical and Computer Engineering
2016-17	Hiring Committee, Department of Statistics
2017-20	Chair, Department of Statistics

HIGHLIGHTS OF SIMON FRASER UNIVERSITY SERVICE

2020-21	Hiring Committee (Chair), Department of Statistics and Actuarial Science
2020-21	Safety Committee, Department of Statistics and Actuarial Science

2021	Participant, Equity Data Commons Roundtable, Simon Fraser University
2021	Contributed interviews to the Simon Fraser University training course for selection and evaluation of Canada Research Chair candidates
2021-22	Publicity Committee (Chair), Department of Statistics and Actuarial Science
2021-22	Premium Fee Strategy Committee, Department of Statistics and Actuarial Science
2021-22	Hiring Committee (Chair), Department of Statistics and Actuarial Science
2022	Teaching Evaluation Policy Development Committee (Chair), Department of Statistics and Actuarial Science
2021-22	EDI Advisory Council, Simon Fraser University
2022-	Distinguished University Professor Advisory Committee, Simon Fraser University
2023-	Associate Dean for Research, Faculty of Sciences, Simon Fraser University

COMMUNITY SERVICE

2004-06	President, Friends of RAMS Cycling, LLC., a nonprofit charity organization
2004-06	Co-Organizer, Horsetooth Double Dip Bicycle Challenge, a community bicycle tour that raised funds for Team Fort Collins (serving at-risk youths), scholarships for the CSU RAMS Cycling Team, and the Rist Canyon Volunteer Fire Department
2014-16	Treasurer, Rocky High School Hockey Club, established 501c3 tax status for club
2019-20	Treasurer, Rocky High School Girls Soccer

COURSES TAUGHT

1978-81	Teaching Assistant, Department of Mathematics, Columbia University
	Conducted recitation sessions and graded for various levels of calculus
	Tutor for undergraduate and returning adult students
1981-87	Graduate Teaching Assistant, Department of Mathematics, University of Michigan
	Taught various courses in precalculus, calculus, and linear algebra at an average of 1 course per semester
	Tutor for high school, undergraduate and graduate students
1987-01	School of Mathematics, Georgia Institute of Technology
	MATH1507 Calculus I, 2 times
	MATH1508 Calculus II, 5 times
	MATH1509 Calculus III, 2 times
	MATH1518* Honors Calculus I, 1 time
	MATH1519* Honors Calculus II, 1 time
	MATH1708 Precalculus, 2 times
	MATH1711 Mathematics for Management, 1 time
	MATH2508 Calculus V, 4 times
	MATH2517* Honors Calculus IV, 1 time
	MATH2518* Honors Calculus V, 1 time
	MATH3709 Mathematics for Systems Engineering, 2 times
	MATH4582 Advanced Engineering Mathematics, 2 times
	MATH4640 Introduction to Scientific Computing I, 7 times
	MATH4641 Introduction to Scientific Computing II, 7 times
	MATH4800* Numerical Methods for Partial Differential Equations, 1 time
	MATH6341 Partial Differential Equations I, 1 time
	MATH6342 Partial Differential Equations II, 1 time
	MATH6343 Partial Differential Equations III, 2 times
	MATH6640 Numerical Methods for Partial Differential Equations, 3 times
	MATH6643 Numerical Linear Algebra, 3 times

MATH6644 Numerical Solution of Nonlinear Equations, 1 time
MATH6646 Numerical Methods for Ordinary Differential Equations, 1 time
MATH6647* Theory of Numerical Methods for Partial Differential Equations, 4 times
MATH8153* Numerical Methods for Dynamical Systems, 1 time
Special Topics Courses in Numerical Methods for Differential Equations, 3 times
Numerous reading courses

2001-   Departments of Mathematics and Statistics, Colorado State University
MATH192 Freshman Seminar in the Mathematical Sciences, 1 time
MATH340 Introduction to Ordinary Differential Equations, 1 time
MATH495* FESCUE Team Research Course, 2 times
MATH517* Introduction to Mathematical Analysis, 2 times
MATH560 Linear Algebra, 1 time
MATH617* Real Analysis I, 3 times
MATH618 Real Analysis II, 3 times
MATH651 Numerical Analysis II, 1 time
MATH652* Finite Element Methods, 2 times
EY680* TREE (Team-based Research in Ecology), 5 times
MATH676 Special Topics in Functional Analysis, 1 time
STAT421, Stochastic Processes, 1 time
STAT521, Stochastic Processes, 4 times
STAT525, Introduction to Time Series, 2 times
STAT560/460, Applied Multivariate Statistics, 1 time
STAT620(680)*, Introduction to Measure Theoretic Probability, 5 times
STAT720, Probability Theory, 3 times
STAT722, Stochastic Differential Equations, 1 time
Numerical Methods for Uncertainty Quantification (SAMSI)*, 1 time
Numerous reading courses

2019-   Department of Statistics and Actuarial Science, Simon Fraser University
STAT 445/645 Applied Multivariate Statistical Analysis, 3 times
STAT 485/685 Applied Time Series Analysis, 1 time
STAT 831, Statistical Theory II, 2 times
*Developed course