

RESUME – Vincent J. Ervin

PERSONAL DATA

Professor
Department of Mathematical Sciences
Clemson University
Clemson, SC 29634-0975
864/656-2193

EDUCATION

Ph.D., Georgia Institute of Technology, 1984, Mathematics
M.S., Georgia Institute of Technology, 1983, Electrical Engineering
M.S., Georgia Institute of Technology, 1981, Mathematics
B.S., Royal Melbourne Institute of Technology, 1978, Mathematics

PROFESSIONAL EXPERIENCE

Clemson University, 8/02- Professor of Mathematical Sciences
1/99-8/99, 3/02-4/02 Acting Chair of Mathematical Sciences
8/91-7/02, Associate Professor of Mathematical Sciences
8/88-7/91, Assistant Professor of Mathematical Sciences

Huazhong University of Science and Technology, Wuhan, China, 06/22/18-07/06/18, Visiting Professor of Mathematics

Shandong Normal University, Jinan, China, 05/16/17-05/27/17, Visiting Professor of Mathematics

Huazhong University of Science and Technology, Wuhan, China, 05/15/16-05/26/16, Visiting Professor of Mathematics

University of Pittsburgh, 3/23/15-3/27/15, Visiting Professor of Mathematics

College of Charleston, 3/3/15-3/13/15, Visiting Professor of Mathematics

Pontificia Universidad Católica de Chile, Santiago, Chile, 1/18/15-2/20/15, Visiting Professor of Mathematics

University of Pittsburgh, 8/05-12/05, Visiting Professor of Mathematics

University of Wales, Aberystwyth, Wales, 5/04-6/04, Visiting Professor of Mathematics

University of Concepcion, Concepcion, Chile, 3/04-5/04, Visiting Professor of Mathematics

Royal Melbourne Institute of Technology, Melbourne, Australia, 1/04-3/04, Visiting Professor of Mathematics

University of Concepcion, Concepcion, Chile, 5/02-6/02, Visiting Professor of Mathematics

University of Pittsburgh, 8/94-5/95, Visiting Associate Professor of Mathematics

Georgia Institute of Technology, 9/86-8/88, Visiting Assistant Professor of Mathematics

Spelman College, 8/85-12/85, Visiting Assistant Professor of Mathematics

Georgia Institute of Technology, 9/84-6/85, Visiting Assistant Professor of Mathematics

CONSULTING EXPERIENCE

Visual Numerics Inc., 6/93-8/93, investigation of software reliability

Lockheed-Georgia Company, 3/87-8/87, investigation of software reliability

MEMBERSHIPS

Member, Society of Industrial and Applied Mathematicians, SIAM

Member, Society of Industrial and Applied Mathematicians-Southeast Atlantic Section,
SIAM-SEAS

PUBLICATIONS

Books and Monographs

Ervin, V.J., An Introduction to the Spectral Method (2015) (available at the Campus Copy Shop)

Ervin, V.J., A Maple Primer for Multivariable Calculus, 1st, 2nd and 3rd editions (1993, 1996, 1998), <http://cecas.clemson.edu/~vjervin/MapleMultiCalc.pdf>

Ervin, V.J., A Maple Primer for Multivariable Calculus – Instructor’s Accompaniment, 1st edition (1996), <http://cecas.clemson.edu/~vjervin/MapleInstr.pdf>

Refereed Journal Publications

1. Barnsley, M., Ervin, V., Hardin, D., and Lancaster, J., “A Solution of an Inverse Problem for some Strange Attractors and other Fractals,” Proc. Nat. Acad. Sci. , 83, 1975-1977, (1986).
2. Ervin, V.J., and Layton, W.J., “On the Approximation of Derivatives of Singularly Perturbed Boundary Value Problems,” SIAM J. Sci. Stat. Computing, 8, 265-277, (1987).
3. Ervin, V.J., and Layton, W.J., “A Second Order Accurate, Positive Scheme for Singularly Perturbed Boundary Value Problems,” Computational Mechanics, 3 (2), 115-128, (1988).

4. Costabel, M., Ervin, V.J., and Stephan, E.P., "On the Convergence of Collocation Methods for Symm's Integral Equations on Open Curves," *Math. Comp.*, 51 (183), 167-179, (1988).
5. Ervin, V.J., and Layton, W.J., "An Analysis of a Defect-Correction Method for a Model Convection-Diffusion Equation," *SIAM J. Numer. Anal.*, 26, 169-179, (1989).
6. Costabel, M., Ervin, V.J., and Stephan, E.P., "Experimental Asymptotic Convergence of the Collocation Method for Boundary Integral Equations on Polygons Governing Laplace's Equation," *Computational Mechanics*, 6, 271-278, (1990).
7. Costabel, M., Ervin, V.J., and Stephan, E.P., "Symmetric Coupling of Finite Elements and Boundary Elements for a Parabolic-Elliptic Interface Problem," *Quart. Appl. Math.*, 48 (2), 265-279, (1990).
8. Costabel, M., Ervin, V.J., and Stephan, E.P., "Experimental Convergence Rates for Various Couplings of Boundary and Finite Elements," *Mathl. Comput. Modelling*, 15, 93-102, (1991).
9. Ervin, V.J., Stephan, E.P., Abou El-Seoud, S., "An Improved Boundary Element Galerkin Method for a thin Electrified Square Plate in R^3 ," *Math. Meth. in Appl. Sci.*, 13, 291-303, (1990).
10. Ervin, V.J., and Stephan, E.P., "A Boundary Element Galerkin Method for a Hypersingular Integral Equation on Open Surfaces," *Math. Meth. in Appl. Sci.*, 13, 281-289, (1990).
11. Ervin, V.J., and Stephan, E.P., "A Boundary Element Method with Mesh Refinement for a Weakly Singular Integral Equation," *Commun. Appl. Numer. Methods*, 7, 273-280, (1991).
12. Ervin, V.J., and Stephan, E.P., "Collocation with Chebyshev Polynomials for a Hypersingular Integral Equation on an Interval," *Computational and Applied Math.*, 43, 221-229, (1992).
13. Ervin, V.J., and Stephan, E.P., "Adaptive Approximations for 3-D Electrostatic Plate Problems," *Advances in Engineering Software*, 15, 211-215, (1992).
14. Ervin, V.J., Heuer, N., and Stephan, E.P., "On the h-p version of the Boundary Element Method for Symm's Integral Equation on Polygons," *Computer Methods in Appl. Mech. Engrg.*, 110, 25-38, (1993).
15. Costabel, M., Ervin, V.J., and Stephan, E.P., "Quadrature and Collocation Methods for the Double Layer Potential on Polygons," *Zeitschrift fur Analysis und ihre Anwendungen*, 12 (4), 699-707, (1993).

16. Sambamoorthi, N., Ervin V.J., and Thomas, G., "Simultaneous Prediction Intervals for Multinomial Logistic Regression Models," *Communications in Statistics - Theory and Methods*, 3 (3), 815-829, (1994).
17. Ervin, V.J., Layton, W.J., and Maubach, J.M., "A Posteriori Error Estimators for a Two Level Finite Element Method for the Navier-Stokes Equations," *Numerical Methods for P.D.E.s*, 12, 333-346, (1996).
18. Ervin, V.J., and Layton, W.J., "A Posteriori Error Estimation for Two Level Discretizations of Flows of Electrically Conducting, Incompressible Fluids," *Computers Math. Applic.*, 31 (11), 105-114, (1996).
19. Duan, J., and Ervin, V.J., "Dynamics of a nonlocal Kuramoto-Sivashinsky Equation," *J. D. E.*, 143, 243-266, (1998).
20. Duan, J., Ervin, V.J., and Gao, H., "Trajectory and attractor convergence for a nonlocal Kuramoto-Sivashinsky equation," *Comm. Applied Nonlinear Anal.*, 5, 33-40, (1998).
21. Klett, J.W., Ervin, V.J., and Edie, D.D., "Finite Element Modeling of Heat Transfer in Carbon-Carbon Composites," *Composites Science and Technology*, 59, 593-607, (1999).
22. Ervin, V.J., Klett, J.W., and Mundt, C.M., "Estimation of the Thermal Conductivity of Composites," *J. Mat. Sci.*, 34, 3545-3553, (1999).
23. Ervin, V.J., and Layton, W.J., "A Robust and Parallel Relaxation Method based on Algebraic Splittings," *Numerical Methods for P.D.E.s.*, 15, 91-110, (1999).
24. Ervin, V.J., Layton, W.J., and Maubach, J.M., "An Adaptive Defect Correction Method for Viscous Incompressible Flow Problems," *SIAM J. Numer. Anal.*, 37, 1165-1185, (2000).
25. Duan, J., and Ervin V.J., "On Nonlinear Amplitude Evolution under Stochastic Forcing," *Appl. Math. Comput.*, 109, 59-65, (2000).
26. Lin, G., Gao, H., Duan, J., and Ervin, V.J., "Asymptotic Dynamical Difference between the nonlocal and local Swift-Hohenberg Models," *J. Math. Phys.*, 41, 2077-2089, (2000).
27. Brannan, J., Duan, J., and Ervin, V.J., "Escape Probability, Mean Residence Time and Geophysical Fluid Particle Dynamics", *Physica D.*, 133, 23-33, (1999).
28. Duan, J., and Ervin, V.J., "On the Stochastic Kuramoto-Sivashinsky Equation", *Nonlinear Analysis: Theory, Methods and Applications*, 44, 205-216, (2001).
29. Allen, G., Dunbar, S., Ervin, V., Herod, J., Holmes, M., Lopez, R., Marlin, J., Meade, D., and Sanchez, D., "Strategies and Guidelines for Using a Computer Algebra System in the Classroom," *International Journal of Engineering Education*, 15, No.6, 411-416, (1999).

30. Cawood, M.W., Ervin, V.J., Layton, W.J., and Maubach, J.M., "Adaptive Defect Correction Methods for Convection Dominated, Convection Diffusion Problems," *Journal of Computational and Applied Mathematics*, 116, 1-21, (2000).
31. Brannan, J., Duan, J., and Ervin, V.J., "Escape Probability and Mean Residence Time in Random Velocity Fields with Unsteady Drift," *Mathematical Problems in Engineering*, 7, 55-65, (2001).
32. Brannan, J., Duan, J., Ervin, V.J., and Razoumov, L., "A Weiner-Hopf Approximation Technique for a Multiple Plate Diffraction Problem," *Mathematical Methods in the Applied Sciences*, 27, 19-34, (2004).
33. Ervin, V.J., and Miles, W.W., "Approximation of Time-Dependent, Viscoelastic Fluid Flow: SUPG Approximation," *SIAM J. Numer. Anal.*, 41, 457-486, (2003).
34. Ervin, V.J., and Heuer, N., "Approximation of Time-Dependent, Viscoelastic Fluid Flow: Crank-Nicolson, Finite Element Approximation," *Numer. Methods for Partial Differential Equations*, 20, 248-283, (2003).
35. Ervin, V.J., and Ntasin, L.N., "A Posteriori Error Estimation and Adaptive Computation of Viscoelastic Fluid Flow," *Numer. Methods for Partial Differential Equations*, 21, 297-322, (2005).
36. Ervin, V.J., and Miles, W.W., "Approximation of Time-Dependent, Multicomponent, Viscoelastic Fluid Flow," *Comp. Meth. Appl. Mech. Eng.*, 194, 2229-2255, (2005).
37. Ervin, V.J., and Heuer, N., "An Adaptive Boundary Element Method for the Exterior Stokes Problem in three Dimensions," *IMA J. Numer. Anal.*, 26, 297-325, (2006).
38. Ervin, V.J., and Ntasin, L.N., "Improving the Effectivity of Residual Based A Posteriori Estimates using a Statistical Approach," *Comp. Meth. Appl. Mech. Eng.*, 195, 614-631, (2006).
39. Ervin, V.J., and Roop, J.P., "Variational Formulation for the Stationary Fractional Advection Dispersion Equation," *Numer. Methods for Partial Differential Equations*, 22, 558-576, (2006).
40. Ervin, V.J., Lee, H.K., and Ntasin, L.N., "Analysis of the Oseen-Viscoelastic Fluid Flow Problem," *J. Non-Newtonian Fluid Mech.*, 127, 157-168, (2005).
41. Ervin, V.J., and Phillips, T.N., "Residual A Posteriori Error Estimator for a Three Field Model of a Generalized Stokes Problem," *Comp. Meth. Appl. Mech. Eng.*, 195, 2599-2610, (2006).
42. Ervin, V.J., and Shepherd, J.J., "Numerical Approximation of the Newtonian Film Blowing Problem," *Computers Math. Applic.*, 49, 1687-1707, (2005).

43. Ervin, V.J., and Lee, H.K., "Defect Correction Method for Viscoelastic Fluid Flows at High Weissenberg Number," *Numer. Methods for Partial Differential Equations*, 22, 145-164, (2006).
44. Ervin, V.J., and Roop, J.P., "Variational Solution of Fractional Advection Dispersion Equations on Bounded Domains in \mathbb{R}^d ," *Numer. Methods for Partial Differential Equations*, 23, 256-281, (2007).
45. Ervin, V.J., Heuer, N., and Roop, J.P., "Numerical Approximation of a Time Dependent, Non-linear, Fractional Order Diffusion Equation," *SIAM J. Numer. Anal.*, 45, 572-591, (2007).
46. Ervin, V.J., Layton, W.J., and Neda, M., "Numerical Analysis of a Higher Order Time Relaxation Model of Fluids," *International Journal of Numerical Analysis and Modeling*, 4, 648-670, (2007).
47. Ervin, V.J., and Lee, H., "Numerical Approximation of a quasi-Newtonian Stokes Flow Problem with Defective Boundary Conditions," *SIAM J. Numer. Anal.*, 45, 2120-2140, (2007).
48. Chrispell, J.C, Ervin, V.J., and Jenkins, E.W., "A Fractional Step Θ -method for Convection-Diffusion Problems," *J. Math. Anal. Appl.*, 333, 204-218, (2007).
49. Ervin, V.J., Howell, J.S. and Lee, H., "A Two-Parameter Defect-Correction Method for Computation of Steady-State Viscoelastic Fluid Flow," *Appl. Math. Comput.*, 196, 818-834, (2008).
50. Ervin, V.J., Howell, J.S. and Stanculescu, I., "A Dual-Mixed Approximation Method for a Three-field Model of a Non-linear Generalized Stokes Problem," *Comp. Meth. Appl. Mech. Eng.*, 197, 2886-2900, (2008).
51. Chrispell, J.C, Ervin, V.J., and Jenkins, E.W., "A Fractional Step Θ -method for Viscoelastic Fluid Flow using a SUPG approximation," *International Journal of Computational Science*, 2, 336-351, 2008.
52. Ervin, V.J., Jenkins, E.W., and Sun, S., "Coupled Generalized Non-linear Stokes Flow with flow through a Porous Media," *SIAM J. Numer. Anal.*, 47, 929-952, (2009).
53. Chrispell, J.C., Ervin, V.J., and Jenkins, E.W., "A Fractional Step θ -method Approximation of Time Dependent Viscoelastic Fluid Flow," *Journal of Computational and Applied Mathematics*, 232, 159-175, (2009).
54. Ervin, V.J., Jenkins, E.W., and Sun, S., "Coupling Non-linear Stokes and Darcy Flow using Mortar Finite Elements," *Appl. Numer. Math.*, 61, 1198-1222, (2011).

55. Case, M.A, Ervin, V.J., Linke, A., Rebholz, L.G., and Wilson, N.E., “Stable Computing with an Enhanced Physics Based Scheme for the 3d Navier-Stokes Equations,” *International Journal of Numerical Analysis and Modeling*, 8, 118-136, (2011).
56. Ervin, V.J., Layton, W.J., and Neda, M., “Numerical Analysis of Filter Based Stabilization for Evolution Equations,” *SIAM J. Numer. Anal.*, 50, 2307-2335, (2012).
57. Ervin, V.J., and Jenkins, E.W., “Stabilized Approximation to Time Dependent Conservation Equations via Filtering,” *Appl. Math. Comput.*, 217, 7282-7294, (2011).
58. Case, M.A, Ervin, V.J., Linke, A., and Rebholz, L.G., “A Connection Between Scott-Vogelius and Grad-Div Stabilized Taylor-Hood Approximations of the Navier-Stokes Equations,” *SIAM J. Numer. Anal.*, 49, 1461-1481, (2011).
59. Ervin, V.J., and Jenkins, E.W., “Stenberg's sufficiency criteria for the LBB condition for Axisymmetric Stokes Flow,” *JMAA*, 398, 421-437, (2013).
60. Ervin, V.J., “Computational Bases for RT_k and BDM_k on Triangles,” *Computers Math. Applic.*, 64, 2765-2774, (2012).
61. Ervin, V.J., “Approximation of Axisymmetric Darcy Flow,” *SIAM J. Numer. Anal.*, 51, 1421-1442, (2013).
62. Ervin, V.J., Jenkins, E.W., and Lee, H., “Approximation of the Stokes-Darcy system by optimization,” *J. Sci. Comput.*, 59, 775-794, (2014).
63. Ervin, V.J., “Approximation of coupled Stokes-Darcy flow in an axisymmetric domain,” *Comp. Meth. Appl. Mech. Eng.*, 258, 96-108, (2013).
64. Crowder, T.R., and Ervin, V.J., “Numerical Simulations of Fluid Pressure in the Human Eye,” *Appl. Math. Comput.*, 219, 11119-11133, (2013).
65. Ervin, V.J., Lee, H., and Salgado, A.J., “Generalized Newtonian Fluid Flow through a Porous Medium,” *JMAA*, 433, 603-621, (2016).
66. Ervin, V.J., Macias-Diaz, J.E., and Ruiz-Ramirez, J., “A positive and bounded finite element approximation of the generalized Burgers-Huxley equation,” *JMAA*, 424, 1143-1160, (2014).

67. Ervin, V.J., Fuhrer, T., Heuer, N., and Karkulik, M., "DPG method with optimal test functions for a fractional advection diffusion equation," *J. Sci. Comput.*, 72, 568-585, (2017).
68. Ervin, V.J., Kubacki, M., Layton W., Moraiti, M., Si, Z., and Trenchea, C., "On limiting behavior of contaminant transport models in coupled surface and groundwater flows," *Axioms*, 4, 518-529, (2015).
69. Ervin, V.J., Lee, H., and Ruiz-Ramirez, J., "Nonlinear Darcy fluid flow with deposition," *Journal of Computational and Applied Mathematics*, 309, 79-94, (2017).
70. Ervin, V.J., Heuer, N., and Roop, J.P., "Regularity of the Solution to 1-D Fractional Order Diffusion Equations," *Mathematics of Computation*, 87, 2273-2294, (2018), <https://doi.org/10.1090/mcom/3295>
71. Ervin, V.J., and Ruiz-Ramirez, J., "A deposition model coupling Stokes' and Darcy's equations with nonlinear deposition," *Journal of Computational and Applied Mathematics*, 340, 151-172, (2018).
72. Ervin, V.J., Kubacki, M., Layton, W., Moraiti, M., Si, Z., and Trenchea, C., "Partitioned penalty methods for the evolutionary Stokes-Darcy-transport problem," *Numerical Methods for Partial Differential Equations*, 35, 349-374, DOI 10.1002/num.22303, (2019).
73. Zheng, X., Ervin, V.J., and Wang, H., "Spectral approximation of a variable coefficient fractional diffusion equation in one space dimension," *Appl. Math. Comput.*, 361, 98-111, (2019).
74. Jia, L., Chen, H., and Ervin, V.J., "Existence and Regularity of solutions to 1-D Fractional Order Diffusion Equations," *Electron. J. Differential Equations*, (93), 1-21, (2019).
75. Zheng, X., Ervin, V.J., and Wang, H., "Wellposedness of the two-sided variable coefficient Caputo flux fractional diffusion equation and error estimate of its spectral approximation," *Appl. Numer. Math.*, 153, 234-247, (2020).
76. Ambartsumyan, I., Ervin, V.J., Nguyen, T., and Yotov, I., "A nonlinear Stokes-Biot model for the interaction of a non-Newtonian fluid with poroelastic media," *ESIAM: Mathematical Modeling and Numerical Analysis*, 53 (6), 1915-1955, (2019).

77. Zheng, X., Ervin, V.J., and Wang, H., “Numerical approximations for the variable coefficient fractional diffusion equations with non-smooth data,” *Computational Methods in Applied Mathematics*, 20(3), 573-589, <https://doi.org/10.1515/cmam-2019-0038>, (2020).
78. Zheng, X., Ervin, V.J., and Wang, H., “An indirect finite element method for variable-coefficient space-fractional diffusion equations and its optimal order error estimates,” *Communications on Applied Mathematics and Computation*, 2 (1), 147-162, DOI.org/10.1007/s42967-019-00037-6, (2020).
79. Yang, S., Chen, H., Ervin, V.J., and Wang, H., “Solvability and approximation of two-sided conservative fractional diffusion problems with variable coefficient based on least squares,” to appear *Applied Mathematics and Computation*, (2021).
80. Ervin, V.J., “Regularity of the solution to fractional diffusion, advection, reaction equations in weighted Sobolev,” *J. Differential Equations*, 278, 294-325, <https://doi.org/10.1016/j.jde.2020.12.034>, (2021).
81. Zheng, X., Ervin, V.J., and Wang, H., “Optimal Petrov-Galerkin spectral approximation method for the fractional diffusion, advection, reaction equation on a bounded interval,” *J. Sci. Comput.*, 86, 29, <https://doi.org/10.1007/s10915-020-01366-y>, (2021).
82. Bentley, A., Ervin, V.J., “Approximation of the Axisymmetric Elasticity Equations,” *Comput. Methods. Appl. Mech. Engrg.*, 374, 113581, 24pp., <https://doi.org/10.1016/j.cma.2020.113581>, (2021).

Conference Proceedings (Reviewed)

1. Ames, W.F., Ervin, V.J., and Adams, E., “Nonlinear Waves in the Pellet Fusion Process,” in *Wave Phenomena: Modern Theory and Applications*, C. Rogers, T. Bryant Moodie eds., North-Holland (Amsterdam), 199-210, (1983).
2. Ames, W.F., Ervin, V.J., and Adams, E., “Group Analysis of the Pellet Fusion Process,” *Proc. of Army Conference*, Atlanta, GA, 1985.
3. Ervin, V.J., and Layton, W.J., “High Resolution, Minimal Storage Algorithms for Convection-Diffusion Problems,” *Proc. of Army Conference*, 1986.
4. Ervin, V.J., and Stephan, E.P., “Experimental Convergence of the Boundary Element Method for the Capacity of the Electrified Square Plate,” in *Boundary Element IX*, Vol.

- 1, C.A. Brebbia, W. L. Wendland, G. Kuhn eds., Springer-Verlag (Berlin, Heidelberg), 167-175, (1987).
5. Ervin, V.J., and Stephan, E.P., "Boundary Element Methods for some 3D Screen Problems," in Computational Mechanics '88, S. N. Atluri, G. Yagawa eds., Springer-Verlag, (1988).
 6. Ervin, V.J., Kieser, R., and Wendland, W.L., "Numerical Approximation of the Solution for a Model 2-D Hypersingular Integral Equation," in Computational Engineering with Boundary Elements, Vol 1, S. Grilli, C.A. Brebbia, A. H-D Cheng, eds., Computational Mechanics Publications, (Southampton, Boston), (1990).
 7. Ervin, V.J., and Stephan, E.P., "Collocation with Chebyshev Polynomials for First Kind Integral Equations on Intervals," in The Mathematics of Finite Elements and Applications VII: MAFELAP 1990, J. R. Whiteman, ed., Academic Press, (1990).
 8. Ervin, V.J., Layton, W.J., and Maubach, J.M., "An Adaptive Defect Correction Approach for Convection Dominated, Convection Diffusion Problems," in Computational Techniques and Applications: CTAC95, Eds. R.L. May and A.K. Easton, World Scientific Pub., 287-294, (1996).
 9. Duan, J., Ervin, V.J., Gao, H., and Guo, B., "Inertial Manifolds for a Nonlocal Kuramoto-Sivashinsky Equation," in the Proceedings of the Conference on Nonlinear Partial Differential Equations and Applications, Eds. G. Boling and Y. Dadi, World Scientific Pub., 105-112, (1998).
 10. Brannan, J., Duan, J., Ervin, V.J., and Razoumov, L., "Weiner-Hopf Factorization of a Multiple Plate Diffraction Problem," in the Proceeding of the Fifth International Conference on Mathematical and Numerical Aspects of Wave Propagation, Ed. P. Joly, A. Bermudez, D. Gomez, C. Hazard, J. Roberts, SIAM Pub., 765-770, (2000).
 11. Duan, J., Ervin, V.J., and Schertzer, D., "Dispersion in Flows with Obstacles and Uncertainty," submitted to Proceedings of the International Conference on Dynamical Systems and Differential Equations, Atlanta, USA, (2000).

Research Reports

1. Ervin, V.J., and Layton, W.J., "Parallel Algebraic Splittings and the Peaceman-Rachford Iteration," Tech. Report, Dept. of Math., Catholic Univ., Nijmegen, The Netherlands (1993).
2. Crosby, S.W., and Ervin, V.J., "Implementation of the Parallel Algebraic splittings and the Peaceman-Rachford iteration," Tech. Report, Dept. of Math. Sci., Clemson University (1994).
3. Ervin, V.J., "Estimating the Thermal Conductivity of Composites using Homogenization," Tech. Report, Dept. of Math. Sci., Clemson University (1998).

4. Cawood, M.E., Ervin, V.J., and Layton, W.J., "A Nonlinear Subgrid Model for Convection Dominated Convection Diffusion Problems," Tech. Report, Dept. of Math. Sci., Clemson University (2002).
5. Ervin, V.J., Howell, J.S., and Lee, H., "Defect-correction strategies for viscoelastic fluid flow," Technical Report TR2006_10_EHL, Clemson University, 2006.
6. Crispell, J.C, Ervin, V.J., and Jenkins, E.W., "A Fractional Step Θ -method for Convection-Diffusion Problems," Technical Report TR2006_11_CEJ, Clemson University, 2006.
7. Ervin, V.J., and Jenkins, E.W., "The LBB condition for the Taylor-Hood P_2 - P_1 and Scott-Vogelius P_2 -disc P_1 element pairs in 2-D," Technical Report Technical Report TR2011_04_EJ, Clemson University, 2011.

Other Scholarly Publications

Ervin, V.J., Layton, W.J., and Maubach, J.M., "Some Graph Coloring Questions arising in Parallel Numerical Methods," in *Algoritmen In De Algebra*, A.H.M. Levelt, ed., Dept. of Math., Univ. of Nijmegen, (1993).

PRESENTATIONS

Invited:

Mathematics Dept., Bendigo College of Advanced Education, (Jan. 1986).
 Mathematics Dept., Georgia Institute of Technology, Atlanta, (May 1987).
 Mathematics Dept., University of Georgia, Athens, (Feb. 1988).
 Mathematics Dept., Arizona State University, Tempe, (Mar. 1988).
 Mathematics Dept., University of Pittsburgh, (Nov. 1988).
 Mathematics Dept., University of Stuttgart, (Jun. 1989).
 Mathematics Dept., University of Hannover, (Nov. 1989).
 Mathematics Dept., University of Pittsburgh, (Mar. 1995).
 Mathematics Dept., Latrobe University, Bendigo, (July 1995).
 Mathematics Dept., University of Pittsburgh, (June 2000).
 Mathematics Dept., University of Pittsburgh, (March 2001).
 Mathematics Dept., University of Newcastle, (May 2001).
 Mathematics Dept., University of Concepcion, (May 2002).
 Mathematics Dept., University of the Frontier, Temuco (June 2002).
 Mathematics Dept., Illinois Institute of Technology, Chicago (Nov. 2002).
 Mathematics Dept., Carnegie Mellon University, Pittsburgh, (Nov. 2003).
 Mathematics Dept., Royal Melbourne Institute of Technology, (Feb. 2004).
 Mathematics Dept., University of Concepcion, (April 2004).
 Mathematics Dept., University of Wales, (June 2004).
 Mathematics Dept., University of Pittsburgh, (Oct. 2005).

Mathematics Dept., Carnegie Mellon University, Pittsburgh, (Nov. 2005).
Mathematics Dept., Georgia Tech., Atlanta, (Jan. 2008).
Mathematics Dept., UNLV, Las Vegas, (May 2008).
Mathematics Dept., University of Pittsburgh, (Nov. 2008).
Mathematics Dept., Drexel University, (Feb. 2010).
Mathematics Dept., University of Pittsburgh, (Nov. 2012).
Mathematics Dept., University of Delaware, (May 2014).
Mathematics Dept., University of Pittsburgh, (Mar. 2015).
Center for Math. Sci., Huazhong University of Sci. & Tech., (May 2016).
Mathematics Dept., University of Pittsburgh, (Oct. 2016).
Mathematics Dept., University of South Carolina, (Nov. 2016).
Mathematics Dept., Shandong Normal University, (May 2017).
Mathematics Dept., Shandong University, (May 2017).
Mathematics Dept., University of Tennessee, (Oct. 2017).
Center for Math. Sci., Huazhong University of Sci. & Tech., (June 2018).

Conference:

AMS Meeting, Gainesville, Florida, (Jun. 1984).
Army Applied Mathematical Conference, Atlanta, (Mar. 1985).
AMS Annual Meeting, San Antonio, (Jan. 1987).
International Conf. on Computational Eng. Sci., Atlanta, (Apr. 1988).
AMS Annual Meeting, Louisville, (Jan. 1990).
SIAM-SEAS Annual Meeting, Huntsville, Alabama, (Apr. 1992).
SIAM-SEAS Annual Meeting, Statesboro, Georgia, (Apr. 1993).
Seventh Comp. Techniques and Applications Conf., Melbourne, Australia, (July 1995).
SIAM-SEAS Annual Meeting, Athens, Georgia, (Mar. 2000).
Society of Engineering Science Annual Conference, Columbia, South Carolina, (Oct. 2000)
SIAM Annual Meeting, Philadelphia, (July 2002).
Workshop on Analysis and Numerics of Non-Newtonian Fluids, Kirchzarten, Germany (2003).
XVIII Jornadas de la Zona Sur, University of Bio-Bio, Concepcion, (2004).
SIAM-SEAS Annual Meeting, Columbia, South Carolina, (Apr. 2009).
AMS Sectional Meeting, Lexington, Kentucky, (Mar. 2010).
Workshop on Approximation Theory and Harmonic Analysis, Kennesaw State University, Atlanta, Georgia, (May, 2011).
XVIIIth International Symposium on Mathematical Methods Applied to the Sciences, University of Costa Rica, San Jose, Costa Rica, (February, 2012).
AMS Sectional Meeting, Las Vegas, Nevada, (April 2015).
SIAM-SEAS Annual Meeting, Birmingham, Alabama, (Mar. 2015).
SIAM-SEAS Annual Meeting, Athens, Georgia, (Mar. 2016).
AMS Sectional Meeting, Charleston, South Carolina, (March 2017).
Workshop on Modeling, Analysis, and Numerics for Nonlocal Applications, Santa Fe, New Mexico, (December, 2017).
SIAM-SEAS Annual Meeting, Chapel Hill, North Carolina, (Mar. 2018).

International Workshop on Theory and Applications of FPDEs, Qingdao, China, (June 2018).

SIAM-SEAS Annual Meeting, Knoxville, Tennessee, (Sept. 2019).

4th Conference on Numerical Methods for Fractional-Derivative Problems (Oct. 2020)

Honors and Awards

Distinguished Graduate, Royal Melbourne Institute of Technology, 1978

Von Humboldt Fellow, University of Stuttgart, 3/89- 9/89

Von Humboldt Fellow, University of Hannover, 9/89-12/89

Sponsored Research

“Modeling of Composite Materials,” SURA-ORNL, PI, \$3,346, (5/96-9/96).

“Center for Advanced Engineering Fibers and Films,” NSF, Investigator, \$9,900,000, (8/98-7/03).

“Computational Analysis of Viscoelastic Fluid Flow with Applications,” NSF, (joint with Hyesuk Lee and Lea Jenkins), \$300,000, (7/04-6/07).

OTHER SPONSORED ACTIVITY

Computing Time: CM-2, Pittsburgh Supercomputing Center, 10 Service Units, 1993-94)

“Mathematical Sciences Scientific Computing Research Environment,” co-PI, \$135,000, (6/97-5/00).

GRADUATE STUDENT ADVISING

Ph.D. Graduates

Miles, W.W., (Ph.D.), “Mathematical Modelling of Multi-Phase Viscoelastic Flows,” (2002).

Ntasin, L.N., (Ph.D.) “A Posteriori Error Estimation and Adaptive Computation of Viscoelastic Fluid Flow,” (2003).

Roop, J.P., (Ph.D.), “Least Squares Approximation of Fractional Order Differential Equations,” (2004).

Howell, J.S., (Ph.D.), “Numerical Approximation of Shear-Thinning and Johnson-Segalman Viscoelastic Fluid Flows,” (2007). (Co-advisor with Hyesuk Lee)

Chripell, J.C., (Ph.D.), “Numerical Analysis of a Fractional Step Theta-Method for Fluid Flow Problems,” (2008). (Co-advisor with Lea Jenkins)

Ruiz-Ramirez, J., (Ph.D.), “Time Dependent Stokes-Darcy Flow with Deposition,” (2017).

Bentley, A.R., (Ph.D.), “A Computational Framework for Axisymmetric Linear Elasticity and Parallel Iterative Solvers for Two-Phase Navier-Stokes,” (2020).

Masters Graduates

Crosbie, S.W., (MS) “Implementation of the Parallel Algebraic Splitting Method,” (1994).

Farr, R.E., (M.S.), “Approximation of matrices using H-Matrices,” (2009).

Hill, A.D., (M.S.), “An investigation into the convergence criteria and implementation issues of decoupled solvers for the coupled generalized Stokes-Darcy problem,” (2011).

Bentley, A.R., (M.S.), “Computational bases for H_{div} ,” (2014).

Undergraduate Research Advisees

Sloop, B., (Honors Thesis) “Approximation Methods in Viscoelasticity,” (2003).

Goodlet, C., (Honors Thesis) “Solution Visualization in Viscoelasticity,” (2003).

Current Graduate Advising

TEACHING

Courses Taught (Since Spring 2013)

MthSc 3110, Linear Algebra, F18

MthSc 3650, Numerical Methods for Engineers, F14,F15,F17,S18,S21

MthSc 4340, Adv. Eng. Mathematics, F13,F16,S17,S19,F20

MthSc 4500, Intro. Math. Modeling, S14

MthSc 6340, Adv. Eng. Mathematics, S13,F13,S14,F14,F15,S16,F16,F17,F18,S19,S20,S21

MthSc 8600, An Introduction to Scientific Computing, F20

MthSc 8660, Finite Element Method I, S13,S16,S17,S20

UNIVERSITY AND PUBLIC SERVICE

Committees

Department:

Member, Graduate Affairs Committee (1997-98)

Member, Calculus Committee (1995-98)

Chair, Calculus Committee (1995-96)

Member, Undergraduate Committee (1991-92, 19, 20)

Member, Research Committee (1993-94, 96,97)

Member, Assistantships and Awards Committee (1997)

Member, Search and Screening Committee (1997-98, 99-01, 04-05)

Member, TPR. Committee (2003-) (Chair, 11-12)

Member, Promotion, Appointment and Reappointment Committee (19,20)

Member, Mathematical Sciences Council (2003,07,09,13,16)

Member, Department Chair Review Committee (08)

Chair, Department Chair Review Committee (15)

College:

Member, Ad-hoc Committee to review TPR document (2002)

University:

Member, General Education Assessment Committee (02, 03)

National:

Member, SIAM Best Student Paper Selection Committee (04, 05)

Revised: May 15, 2021.