RESUME - Eleanor W. Jenkins

PERSONAL DATA

Associate Professor
Department of Mathematical Sciences
Clemson University
Clemson, SC 29634-0975
864/656-6907

EDUCATION

Ph.D., North Carolina State University, 2000, Mathematics
M.S., Clemson University, 1990, Mathematical Sciences
B.S., Wofford College, 1988, Mathematics

PROFESSIONAL EXPERIENCE

Clemson University, 2009-Present, Associate Professor of Mathematical Sciences
Statistical and Applied Mathematical Sciences Institute, Jan 2015 - May 2015, Visiting Faculty.
Clemson University, 2002-2009, Assistant Professor of Mathematical Sciences
University of Texas at Austin, 2001-2002, Research Associate,
    Center for Subsurface Modeling, Texas Institute of Computational and Applied Mathematics
University of Texas at Austin, 2000-2001, Postdoctoral Research Assistant,
    Center for Subsurface Modeling, Texas Institute of Computational and Applied Mathematics
North Carolina State University, 1996-2000, Research Assistant.

CONSULTING EXPERIENCE

U. S. Army Corps of Engineers Engineer Research and Development Center, Vicksburg, MS
(1997-2000), developed solution methods for three-dimensional hydraulics flow code.

MEMBERSHIPS

Member, Society for Industrial and Applied Mathematics, SIAM (1996-present)
Member, Association for Women in Mathematics (AWM) (1998-present)
Member, Mathematical Association of America (MAA) (2000-present)
Member, American Filtration and Separations Society (AFS) (2010-present)
Member, American Mathematical Society, (AMS) (1996-2012)
Member, U.S. Association for Computational Mechanics (2002-2004)

PROFESSIONAL ACTIVITIES

Associate Editor, *American Mathematical Monthly* (2010-present)
Member, Editorial Board, *Advances in Water Resources* (2010-present)
SIAM Geosciences Activity Group, Liaison to *SIAM News* (2001-present)
Member, SIAM Ad-Hoc Committee for Governance Advice for Sections (2010)
President, SIAM Southeastern-Atlantic Section (2009-2010)
Secretary/Treasurer, President-Elect, SIAM Southeastern-Atlantic Section (2008-2009)
Member, AWM Committee, Organization of student collegiate chapters, (2001-2004)
SC2003, Vice-Chair, Birds of a Feather Organizing Committee (2002–2003)

PUBLICATIONS
Refereed Journal Publications

1. Fowler, K.R., Jenkins, E.W., Parno, M.D., Chrispell, J.C., Colón, A.I., and Hanson, R.T., "Development and use of mathematical models and software frameworks for integrated analysis of agricultural systems and associated water use impacts", submitted for review.

2. Wilson, A.B., Jenkins, E.W., Husson, S.M., and Wang, J., "Analysis of a time-integrated SUPG framework for numerical simulation of adsorption models", submitted for review.

3. Dean, B.C., Dimitrova, E., Jenkins, E.W., Koshy, S., and Galande, A., "Determining parameters leading to chaotic dynamics in systems", submitted for review.

4. Wang, J., Jenkins, E.W., Robinson, J.R., Wilson, A., and Husson, S.M., "A new multimodal membrane adsorber for monoclonal antibody purifications", *Journal of Membrane Science*, 492, 137–146, 2015.

5. Fowler, K.R., Jenkins, E.W., Ostrove, C.I., Chrispell, J.C., Farthing, M.W., and Parno, M.D., "A decision making framework with MODFLOW-FMP2 via optimization: Determining trade-offs in crop selection", *Environmental Modelling & Software*, 69, 2015.

6. Bokhira, J., Fowler, K.R., and Jenkins, E.W., "Modeling and optimization for crop portfolio management under limited irrigation strategies", *Journal of Agricultural and Environmental Sciences*, 3(1), 209–237, 2014.

7. Jenkins, E.W., Paribello, C., and Wilson, N.E., "Discrete mass conservation for porous media saturated flow", *Numerical Methods for Partial Differential Equations*, 30(2), 625–640, 2014.

8. Jenkins, E.W., John, V., Linke, A., and Rebholz, L.G., "On the parameter choice in grad-div stabilization for the Stokes equation", *Advances in Computational Mathematics*, 40(2), 491–516, 2014.

9. Ervin, V.J., Jenkins, E.W., and Lee, H.K., "Approximation of the Stokes-Darcy system by optimization", *Journal of Scientific Computing*, 59(3), 775–794, 2014.

10. Ervin, V.J., and Jenkins, E.W., "Stenberg's sufficiency criteria for the LBB condition for axisymmetric Stokes flow", *Journal of Mathematical Analysis and Applications*, 398(1), 421–437, 2013.

11. Brackett-Rozinsky, N., Fowler, K.R., Jenkins, E.W., and Mondal, S., "Sensitivity analysis for a polymer extrusion filter computational simulator", *Modeling and Simulation in Engineering*, 2011, doi:10.1155/2011/138143.

12. Connors, J.M., Jenkins, E.W., and Rebholz, L.G., "On small-scale divergence penalization for incompressible flow problems via time relaxation", *International Journal of Computer Mathematics*, 88(15), 3202–3216, 2011.

13. Ervin, V.J., Jenkins, E.W., and Sun, S., "Coupling nonlinear Stokes and Darcy flow using mortar finite elements", *Applied Numerical Mathematics*, 61, 1198–1222, 2011.

14. Ervin, V.J. and Jenkins, E.W., "Stabilized approximation to degenerate transport equations via filtering", *Applied Mathematics and Computation*, 217(17), 7282–7294, 2011.

15. Fowler, K.R., Jenkins, E.W., and McClune, B., "Polymer extrusion filter design with a hybrid PSO-GA optimization approach", *Filtration*, 11(1), 58–64, 2011.

16. Fowler, K.R., Jenkins, E.W., and LaLonde, S.M., "Understanding the effects of polymer extrusion filter layering configurations using derivative-free optimization", *Optimization and Engineering*, 11(2), 339–354, 2010.

17. 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(2), 159–175, 2009.

18. Fowler, K.R., Jenkins, E.W., LaLonde, S.M., and Cox, C.L., "A simulation-based optimization approach to polymer extrusion filter design", *Filtration*, 9(3), 224–230, 2009.

19. Ervin, V.J., Jenkins, E.W., and Sun, S., "Coupled generalized nonlinear Stokes flow with flow through a porous medium", *SIAM Journal on Numerical Analysis*, 47(2), 929–952, 2009.

20. 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(3), 336–351, 2008.

21. Fowler, K.R., Jenkins, E.W., Cox, C.L., McClune, B., and Seyfzadeh, B., "Design analysis of polymer filtration using a multi-objective genetic algorithm", *Separation Science and Technology*, 43(4), 710–726, 2008.

22. Jenkins, E.W. and Lee, H.K., "A domain decomposition method for the Oseen viscoelastic flow equations", *Applied Mathematics and Computation*, 195(1), 127–141, 2008.

23. Chrispell, J.C., Ervin, V.J., and Jenkins, E.W., "A fractional step θ-method for convection-diffusion problems", *Journal of Mathematical Analysis and Applications*, 333(1): 204–218, 2007.

24. Jenkins, E.W., "Numerical solution of the acoustic wave equation using Raviart-Thomas elements", *Journal of Computational and Applied Mathematics*, 206(1): 420–431, 2007.

25. Kees, C.E., Miller, C.T., Jenkins, E.W., and Kelley, C.T., "Versatile multilevel Schwarz preconditioners for multiphase flow," *Computational Geosciences*, 7(2):91-114, 2003.

Prior to Clemson

1. Jenkins, E.W., Rivière, B., and Wheeler, M.F., "*A priori* error estimates for mixed finite element formulations of the acoustic wave equation," *SIAM Journal on Numerical Analysis*, 40(5):1698–1715, 2002.

2. Jenkins, E.W., Kees, C.E., Kelley, C.T., and Miller, C.T., "An aggregation-based domain decomposition preconditioner for groundwater flow," *SIAM Journal on Scientific Computing*, 23(2):430–441, 2001.

Conference Proceedings (Reviewed)

1. Chrispell, J.C., Fowler, K.R., Howington, S.E., Jenkins, E.W., Minik, M., and Sendova, T., "Meeting a sustainable water yield for agricultural practices through crop rotation and catchment basin design", *Proceedings of the South Carolina Water Resources Conference*, Columbia Metropolitan Convention Center, Columbia, SC (October 2012).

2. Jenkins, E.W., Paribello, C., and Wilson, N.E., "Mass conserving schemes for saturated groundwater flow", in Proceedings of the XIX International Conference on Computational Methods in Water Resources, University of Illinois at Urbana-Champaign, http://proceedings.cmwr-xix.org/ (June 2012).

3. Farthing, M.W., Kees, C.E., Jenkins, E.W., and Miller, C.T., "An evaluation of linearly implicit time discretization methods for approximating Richards' Equation", in Proceedings of the XVI International Conference on Computational Methods in Water Resources, Copenhagen, Denmark, http://proceedings.cmwr-xvi.org/ (June 2006).

4. Kees, C.E., Farthing, M.W., Howington, S.E., Jenkins, E.W., and Kelley, C.T., "Nonlinear multilevel iterative methods for multiscale models of air/water flow in porous media", in Proceedings of the XVI International Conference on Computational Methods in Water Resources, Copenhagen, Denmark, http://proceedings.cmwr-xvi.org/ (June 2006).

Prior to Clemson

1. Peszyńska, M., Jenkins, E.W., and Wheeler, M.F., "Boundary conditions for fully implicit two-phase flow models," in X. Feng and T. Schulz, editors, *Recent Advances in Numerical Methods for Partial Differential Equations and Applications*, *Contemporary Mathematics* series, American Mathematical Society, 2002, pp. 85–106.

2. Jenkins, E.W., Wheeler, M.F., and Wheeler, J.A., "Agglomeration multigrid methods for two-phase flow models", *Developments in Water Science, Vol. 2*, proceedings of the XIV International Conference on Computational Methods in Water Resources, Elsevier Science, Amsterdam, The Netherlands, (June 2002).

3. Jenkins, E.W., Berger, R.C., Hallberg, J.P., Howington, S. E., Kelley, C.T., Schmidt, J.H., Stagg, A.K., and Tocci, M.D., "A two-level aggregation based Newton-Krylov-Schwarz method for hydrology," in D. Keyes, A. Ecer, N. Satofuka, P. Fox, and J. Periaux, editors, *Parallel Computational Fluid Dynamics: Towards Teraflops, Optimization, and Novel Formulations*. Elsevier Science, Amsterdam, The Netherlands, 2000.

Conference Proceedings (Unreviewed)

1. Chrispell, J.C., Farthing, M.W., Fowler, K.R., Howington, S.E., Jenkins, E.W., Dutta, S., and Ji, B., "Optimization of a managed aquifer recharge network", *Proceedings of the 2014 South Carolina Water Resources Conference*, Columbia Metropolitan Convention Center, Columbia, SC (October 2014).

2. Fowler, K.R., Jenkins, E.W., and McClune, B., "Polymer extrusion filter design with hybrid optimization techniques", in *Proceedings of the American Filtration and Separations Society Annual Conference*, San Antonio, TX (March 2010).

3. Fowler, K.R., Jenkins, E.W., LaLonde, S.M., and Cox, C.L., "A simulation-based optimization to polymer extrusion filter design", in *Proceedings of the American Filtration and Separations Society Annual Conference*, Valley Forge, PA (May 2008).

4. Cox, C.L., Jenkins, E.W., and Mucha, P.J., "Modeling of debris deposition in a polymer extrusion filter", in PPS-21, Leipzig, Germany (June 2005).

Prior to Clemson

1. Rivière, B. Wheeler, M.F., and Jenkins, E.W., "Locally conservative algorithms for flow", in Proceedings of the High Performance Computing User's Group Meeting, Biloxi, MS (June 2001).

2. Kees, C.E., Miller, C.T., Kelley, C.T., and Jenkins, E.W. "Aggregation-based multilevel preconditioners for multiphase flow in porous media", EOS Transactions, American Geophysical Union, Vol. 81, No. 48, p. F544, American Geophysical Union Fall Meeting, San Francisco, CA (Dec. 2000).

3. Howington, S.E., Berger, R.C., Hallberg, J.P., Peters, J.F., Stagg, A.K., Jenkins, E.W., and Kelley, C.T., "A model to simulate the interaction between groundwater and surface water," in Proceedings of the High Performance Computing User's Group Meeting, Monterrey, CA (June 1999).

Research Reports

1. Wilson, A.B., Jenkins, E.W., Wang, J., and Husson, S.M., "Modeling, analysis, and simulation of filtration and separations environments", Technical Report TR2015_08.aw.ej.jw.sh, Department of Mathematical Sciences, Clemson University, Clemson, SC (August 2015).

2. Fowler, K.R., Ostrove, C.I., Jenkins, E.W., Chrispell, J.C., Farthing, M.W., and Parno, M., "An example of Agricultural water management with MODFLOW-FMP2 and DAKOTA", Technical Report TR2014-8, Department of Mathematical Sciences, Clemson University, Clemson, SC (August 2014).

3. Chrispell, J.C., Farthing, M.W., Fowler, K.R., Howington, S.E., Jenkins, E.W., and Ostrove, C.I., "Mathematical modeling, simulation, and optimal design for agricultural water management: Part III", project report for AIM Squares, American Institute of Mathematics, Palo Alto, CA (May 2014).

4. Chrispell, J.C., Farthing, M.W., Fowler, K.R., Jenkins, E.W., and Parno, M., "Mathematical modeling, simulation, and optimal design for agricultural water management: Part II", project report for AIM Squares, American Institute of Mathematics, Palo Alto, CA (May 2013).

5. Chrispell, J.C., Fowler, K.R., Howington, S.E., Jenkins, E.W., and Sendova, T., "Mathematical modeling, simulation, and optimal design for agricultural water management: Part I", project report for AIM Squares, American Institute of Mathematics, Palo Alto, CA (February 2012).

6. Ervin, V.J. and Jenkins, E.W., "Stenberg's sufficiency condition for axisymmetric Stokes flow", Technical Report TR2011_05, Department of Mathematical Sciences, Clemson University, Clemson, SC (May 2011).

7. Ervin, V.J. and Jenkins, E.W., "The LBB condition for the Taylor-Hood P_2-P_1 and Scott-Vogelius P_2-$discP_1$ element pairs in 2-D", Technical Report TR2011_04, Department of Mathematical Sciences, Clemson University, Clemson, SC (April 2011)

8. Chrispell, J.C., Fowler, K.R., Gray, G., Howington, S.E., Jenkins, E.W., Minick, M., Schwend, A., Sendova, T., and Springer, D., "Optimizing profits given fixed water usage in Pajaro Valley, California", project report on *Sustaining Aquifers*, American Institute of Mathematics, Palo Alto, CA (March 2011).

9. Chrispell, J.C., Ervin, V.J., and Jenkins, E.W., "A fractional step θ-method for viscoelastic fluid flow using a SUPG approxmation", Technical Report TR2007_10, Department of Mathematical Sciences, Clemson University, Clemson, SC (October 2007).

10. Chrispell, J.C., Ervin, V.J., and Jenkins, E.W., "A fractional step θ-method for convection-diffusion problems", Technical Report TR2006_11, Department of Mathematical Sciences, Clemson University, Clemson, SC (November 2006).

Prior to Clemson

1. Jenkins, E.W., "The IPARSv2 air-water model", University of Texas at Austin, TICAM Report 02-27 (July 2002).

2. Jenkins, E.W., Berger, R.C., Hallberg, J.P., Howington, S.E., Kelley, C.T., Schmidt, J.H., Stagg, A.K. and Tocci, M.D., "Newton-Krylov-Schwarz methods for Richards' equation,", North Carolina State University, CRSC-TR99-32 (October 1999).

Other Scholarly Publications

1. Jenkins, E., and Fowler, K., "Using modeling, simulation, and optimization to address the agricultural water crisis", invited contribution, *SIAM News*, https://sinews.siam.org/DetailsPage/tabid (December 2014).

2. Jenkins, E.W., "Raspberry fields forever (cont'd)", *Mathematics of Planet Earth* blog post, http://mpe.dimacs.rutgers.edu/2013/04/25/raspberry-fields-forever-contd (April 2014).

3. Sun, S., Jenkins, E.W., Chen, Z. and Geiser, J., "Mathematical and numerical modeling of flow and transport", *Journal of Applied Mathematics*, vol. 2011, 4 pages, doi:10.1155/2011/901380 (July 2011).

4. Cox, C.L., Jenkins, E.W., and Mucha, P.J., "Modeling of debris deposition on an extrusion filter medium", contributed abstract, Third Annual M.I.T. Conference on Computational and Solid Mechanics (June 2005).   **Prior to Clemson**

5. Rivière, B., and Jenkins, L., "In pursuit of better models and simulations, oil industry looks to the math sciences." *SIAM News*, volume 35, number 1, (January/February 2002).

6. Jenkins, L. and Rivière, B., "Geoscientists meet in Colorado to explore increasingly complex, multidisciplinary problems." *SIAM News*, volume 34, no. 9, (November 2001).

PRESENTATIONS
Invited

1. "Mathematics for Water Management Strategies", MPE2013+ Workshop on Natural Resources, Howard University, Washington, DC, June 2015.

2. "The Strawberries of Wrath: Farming Under the Realities of Drought", SAMSI Undergraduate Workshop, Research Triangle Park, May 2015.

3. "Modeling and Analysis of Filtration and Separations Systems", NCSU Numerical Analysis Seminar, Raleigh, NC, March 2015.

4. "What Does a Mathematician Do All Day?", NCSU SIAM Student Chapter, Raleigh, NC, March 2015.

5. "Analysis of a Managed Aquifer Recharge System", 2014 SIAM Annual Meeting, Chicago, IL, July 2014.

6. "Look for the Mathematics", Keynote address, Mathematics Conference and Competition of Northern New York, Clarkson University, Potsdam, NY, March 2014.

7. "Meeting a Sustainable Water Yield for Agriculture through Crop Rotation and Managed Aquifer Recharge Networks", Department of Mathematics Colloquium, College of Charleston, Charleston, SC, November 2013.

8. "Results of Design Studies Using Derivative-Free Optimization for Multi-layered Filters", 2013 SIAM Conference on Computational Science and Engineering, Boston, MA, February 2013.

9. "Mathematical Analysis of Problems in Filtration Applications", Eighth International Conference on Scientific Computing and Applications, University of Nevada, Las Vegas, April 2012.

10. "Coupled Generalized Non-linear Stokes Flow with Flow Through a Porous Media", IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, April 2011.

11. "Time-Relaxation Methods for Degenerate Transport Problems", SIAM Conference on Mathematical and Computational Issues in the Geosciences, Long Beach, CA, March 2011.

12. "Numerical Aspects of Filtration Problems", Mathematics Department Colloquium, Wofford College, March 2011.

13. "Time Relaxation Methods for Coupled Parabolic/Hyperbolic Problems", 33rd Annual Southeastern-Atlantic Section Annual Meeting, Columbia, SC, April 2009.

14. "Modeling of Debris Deposition in an Extrusion Filter Medium", SIAM Conference on Computational Science and Engineering, Miami, FL, March 2009.

15. "Assessing Polymer Extrusion Filter Performance with Gradient-Free Optimization Methods", SIAM Conference on Optimization, Boston, MA, May 2008.

16. "Design Analysis of Polymer Filtration", Fluids Seminar, Clemson University, October 2007.

17. "Nonlinear Issues in Two-Phase Air-Water Simulations", Solution Methods for Large-Scale Nonlinear Problems, Lawrence Livermore National Laboratory, Livermore, CA, August 2003.

18. "Non-Newtonian Fluid Flow Through an Extrusion Filter", Workshop on Simulation and Optimization, Statistical and Mathematical Sciences Institute, Research Triangle Park, NC, April 2003.

Prior to Clemson

1. "Modeling Multiphase Flow Using Locally Conservative Methods," Applied Mathematics Seminar, Virginia Polytechnic Institute and State University, February 2002.

2. "Modeling Multiphase Flow Using Locally Conservative Methods," Mathematics Seminar, Clemson University, January 2002.

3. "Newton-Krylov-Schwarz Methods for Problems in Hydrology," Mathematics Colloquium, University of Pittsburgh, January 2002.

4. "Use of Two-Phase Models for Groundwater Flow," Center for Subsurface Modeling Affiliates Meeting, Austin, TX, October, 2001.

5. "Guiding Your Mathematics Career," Graduate Student Seminar, North Carolina State University, September 2001.

6. "Air-Water Models Integrated Into a Reservoir Simulator," Numerical Analysis Seminar, North Carolina State University, September, 2001.

7. "Locally Conservative Modelling of Two-Phase Flow in Porous Media," Applied Math Seminar, Duke University, September 2001.

8. "A Locally Conservative Method for Modeling Multiphase Flow," Math Colloquium, University of Pittsburgh, September, 2001.

9. "Use of Mixed Finite Elements for Acoustic Waves," 2001 SIAM Annual Meeting, AWM Workshop, San Diego, CA, July 2001.

10. "A Priori Error Estimates for the Acoustic Wave Equation," 2001 SIAM Conference on Mathematical and Computational Issues in the Geosciences, Boulder, CO, June 2001.

11. "Matrices and the Environment," Department of Mathematics Majors' Seminar, Trinity University, San Antonio, TX, February 2001.

12. "Solver Techniques for Flow Equations," Center for Subsurface Modeling Affiliates Meeting, Austin, TX, October 2000.

13. "Newton-Krylov-Schwarz Methods for Hydrology Problems," Workshop on Nonlinear Solvers, Pleasanton, CA, July 2000.

14. "Aggregation-Based Domain Decomposition Methods for Unsaturated Flow II: Theory and Results," 2000 SIAM Annual Meeting, Puerto Rico, July 2000.

15. "Domain Decomposition Preconditioners for Nonlinear Equations in Hydrology," Sixth SIAM Conference on Optimization, Atlanta, GA, May 1999.

16. "Newton-Krylov-Schwarz Methods Implemented in ADH," Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences, San Antonio, TX, March 1999.

Contributed

1. "Optimization of a Managed Aquifer Recharge Network", 2014 South Carolina Water Resources Conference, Columbia, SC, October 2014.

2. "Mass Conserving Schemes for Saturated Groundwater Flow", Computational Methods in Water Resources, XIX International Conference, University of Illinois at Urbana-Champaign, June 2012.

3. "Meeting a Sustainable Water Yield for Agricultural Practices Through Crop Rotation and Catchment Basin Design", South Carolina Water Resources Conference, Columbia, SC, October 2012.

4. "Polymer Extrusion Filter Design with Hybrid Optimization Techniques", American Filtration Society Annual Conference, San Antonio, TX, March 2010.

5. "A Simulation-Based Approach to Polymer Extrusion Filter Design", American Filtration Society Annual Conference, Valley Forge, PA, May 2008.

6. "Debris Deposition on an Extrusion Filter Medium", Third M.I.T. Conference on Computational and Solid Mechanics, Boston, MA, June 2005.

Prior to Clemson

1. "Aggregation-Based Domain Decomposition Methods for Unsaturated Flow II: Theory and Convergence," Copper Mountain Conference on Iterative Methods, Copper Moutain, CO, April 2000.

2. "Multilevel Schwarz Preconditioners Applied to Groundwater Flow Problems", Poster presentation, 1999 SIAM Annual Meeting, AWM Workshop, Atlanta, GA, May 1999.

3. "Implementing Linear Solvers in ADH on the Cray T3E," Cray Research Fellows Day, North Carolina Supercomputing Center, Research Triangle Park, NC, May 1998.

MEDIA

1. "From Kadison-Singer to Berries: AIM Facilitates a Wide Range of Research Projects", AIMatters, `http://issuu.com/aimath/docs/aimatters_autumn_2014` (Autumn 2014).

2. "The powerful chemistry of Math", *Glimpse*, Clemson University (Fall 2014).

3. "Farmers use math to save water as drought grips California", Clemson University press release (Sept. 2014).

4. "Strawberries with a thirst", NSF Discoveries article, written by Ivy Kupec, `http://1.usa.gov/1kaUiCZ/` (July 2014).

5. "Strawberry fields forever - with some help from mathematicians!", NSF Science Nation video, `http://www.nsf.gov/news/special_reports/science_nation/strawberryfields.jsp` (July 2014).

SPONSORED RESEARCH

1. "Statistical and Applied Mathematical Sciences Institute: Funded Visitor for the Year of the Ecology Program", National Science Foundation, $20,892 (January 2015 – May 2015)

2. "REU Site: Advanced Functional Membranes", National Science Foundation, Investigator (5%) (July 2011 – July 2013)

3. "Air/Water Flow in Porous Media: A Comparison of Accurate and Efficient Numerical Methods", Army Research Office, PI, $294,591 ($294,951) (July 2005 – June 2009)

4. "Computational Analysis of Viscoelastic Fluid Flow with Applications", National Science Foundation, co-PI, $300,000 ($100,000) (July 2004 – June 2007)

5. "Center for Advanced Engineering Fibers and Films", National Science Foundation, Investigator, $9,900,000 ($10,000) (2002 – 2008)

OTHER SPONSORED ACTIVITY

1. SQuaRE funding, American Institute of Mathematics, "Simulation-based optimization for agricultural decision making analysis", 3 sponsored workshops, $2000 for each of six participants one week each year (2016–2018)

2. Travel funding and stipend, SAMSI, Industrial Mathematical and Statistical Modeling Workshop, $3500 (July 2015)

3. Travel funding, DIMACS, MPE2013+ Workshop on Management of Natural Resources (invited speaker), $1000 (June 2015).

4. Workshop grant, American Institute of Mathematics, *Integrated analysis for agricultural management strategies*, travel funding for 28 particpants and stipend, $47,500 (May 2015).

5. Travel funding and stipend, SAMSI, Industrial Mathematical and Statistical Modeling Workshop, $3500 (July 2014)

6. Travel grant, USACE-ERDC, Proteus Development Workshop, Duck, NC, $2000 (March 2014)

7. Travel funding and stipend, SAMSI, Industrial Mathematical and Statistical Modeling workshop, $3500 (July 2013)

8. Travel grant, USACE-ERDC, Proteus Development, Vicksburg, MS, $2000 (May 2013)

9. Travel grant, USACE-ERDC, Proteus Development, Vicksburg, MS, $1500 (February 2013)

10. Travel grant, AWM, Computational Methods in Water Resources, XIX International Conference, University of Illinois at Urbana-Champaign, $1500 (July 2012)

11. Travel funding and stipend, SAMSI, Industrial Mathematical and Statistical Modeling Workshop, $3500 (July 2012)

12. Travel funding, Eighth International Conference on Scientific Computing and Applications, UNLV, $1000 (April 2012)

13. SQuaRE funding, American Institute of Mathematics, *Mathematical modeling, simulation, and optimal design for agricultural water management*, 3 sponsored workshops, $2000 for each of six participants one week each year (2012–2014)

14. Travel funding and stipend, SAMSI, Industrial Mathematical and Statistical Modeling workshop, \$3500 (July 2011)

15. Travel funding, American Mathematics Institute, Workshop on Sustainability Problems, \$1500 (January 2011)

16. Computational equipment, IBM, 2 workstations with Intel Dual Core Xeon 5260 processors, \$14,000 (June 2008–June 2009)

17. Travel funding, NSF-CBMS Regional Research Conference, "Mathematical and Numerical Treatment of Fluid Flow and Transport in Porous Media", University of Nevada, Las Vegas (May 2006)

18. Travel funding, Clemson University OTEI, 2005 Case Study Teaching in Science, SUNY-Buffalo (Oct. 2005)

Prior to Clemson

1. Travel grant, AWM, 2001 SIAM Annual Meeting, \$1500 (June 2001)

GRADUATE STUDENT ADVISING
Doctor of Philosphy Graduates

Wilson, A.B., (PhD, in progress) "Numerical Simulation of Multimodal Membrane Separations Processes"
Chrispell, J.C. (PhD) "Numerical Analysis of Fractional Step θ-Methods for Fluid Flow Problems" (co-advisor: V.J. Ervin) (August 2008)

Masters Graduates

Kuberry, P.A. (MS) "Genetic Algorithm and Nelder-Mead Hybrid" (May 2012)
Paribello, C. (MS) "Social Network Analysis of the Egyptian Revolution on Twitter" (May 2012)
Cox, A.C. (MS) "Numerical simulation of debris deposition on an extrusion filter medium" (co-advisor: C.L. Cox) (May 2007)
Diana, A.M. (MS) "A two-level method with coarse mesh correction for viscoelastic fluid flow" (co-advisor H.K. Lee) (May 2006)
Houchins, J.L. (MS) "Parallel implementation of a finite element code using PETSc" (co-advisor C.L. Cox) (May 2006)
Chrispell, J.C. (MS) "Exploration of solvers for partial differential equations using the PETSc framework" (May 2004)

TEACHING
Courses Taught (Beginning Fall, 2002)

MthSc 206, Calculus of Several Variables, F03,F04,F05,F07,F09,F10,F11,F12
Math 2060, Calculus of Several Variables, F14
MthSc 208, Introduction to Differential Equations, F02
MthSc 208H, Introduction to Differential Equations (Honors), S03
MthSc 360, Computer Analysis in Engineering, F07,S09
MthSc 365, Computer Analysis in Engineering, S10,S11
MthSc 434/634, Advanced Engineering Mathematics, S04,F04,S05,F05,S06,S07,S08,S11

MthS 4340/6340, Advanced Engineering Mathematics, F13
Math 4340/6340, Advanced Engineering Mathematics, S14,F14,F15
Math 4600/6600, Introduction to Numerical Analysis, S14
MthSc 860, Introduction to Scientific Computing, S03,SSI03,S05,S06,S10,S11,S12
MthS 8600, Introduction to Scientific Computing, F13
MthSc 861, Numerical Analysis I, F03,F09,F12
Math 8610, Numerical Analysis I, F15

UNIVERSITY AND PUBLIC SERVICE

Continuing Education

Co-organizer, *2016 Spring Opportunities Workshop for Women in Math Sciences*, Statistical and Applied Mathematical Sciences Institute (April 2016).

Faculty mentor and Project Presenter, *Undergraduate Modeling Workshop*, Statistical and Applied Mathematical Sciences Institute (May 2015)

Co-organizer, *Integrated Analysis for Agricultural Management Strategies*, American Institute of Mathematics sponsored workshop (May 2015).

Co-organizer, *Developing, Maintaining, and Employing Large Computational Frameworks for the Ecological Sciences*, Statistical and Applied Mathematical Sciences Institute sponsored workshop, April 2015.

Faculty mentor, *Industrial Mathematical and Statistical Modeling Workshop*, Statistical and Applied Mathematical Sciences Institute (July 2011, July 2012, July 2013, July 2014, July 2015)

Panel Member, *Writing for Success*, SIAM Annual Conference (July 2014)

Minisymposium co-organizer, *The Mathematics of Sustainability*, SIAM Annual Conference (July 2014).

REU co-mentor, "Characterization of Advanced Functional Membranes", *REU Site: Advanced Functional Membranes*, Clemson University (Summer 2013)

Minisymposium co-organizer, *The Realities of Using Derivative-Free Optimization Techniques*, 2013 SIAM Conference on Computational Science and Engineering (February 2013)

Co-organizer, SIAM Southeast-Atlantic Conference (April 2009)

Minisymposium co-organizer, *Computational Issues in the Geosciences*, SIAM Southeast Atlantic Conference (April 2009)

Minisymposium co-organizer, *Industrial Applications of Porous Media Flow*, SIAM Computational Sciences and Engineering (March 2009)

Minisymposium co-organizer, *Air/Water Flow in Near Surface Environments*, USNCCM 9 (July 2007)

Co-organizer, *Analysis and Computational Mathematics Seminar*, Clemson University Mathematical Sciences Department (Jan. 2003 - May 2006)

Judge, Undergraduate student papers, Joint SIAM-MAA Regional Meeting, Clemson University (May 2003)

Prior to Clemson

Minisymposium co-organizer, *Numerical Methods for Fully Implicit Formulations of Nonlinear Systems*, Sessions I and II, 2002 SIAM Annual Meeting

Organizer, CSM Graduate Student Seminar (Sept. 2000-July 2002)

Committees

Department:	Faculty Mentor, Clemson University AWM Chapter (Jan. 2013–present)
	Member, Calculus Challenge Committee (2010–present)
	Member, Mathematical Sciences Council (2010-2011)
	Member, Graduate Affairs Committee (2009-2010, 2012, 2013-2014, Fall 2014, 2015-201
	Moderator, MTHSC 206 textbook evaluation committee (Spring 2008)
	Moderator, MTHSC 208 textbook evaluation committee (Spring 2009)
	Member, Research Committee (2003-2006, 2011-2012)
College:	Member, CAEFF Director Search and Screening Committee (2002-2004)
University:	Member, Committee to Establish a Phi Beta Kappa Chapter (2003-2006)
Community:	Member, Mentor Network Pairing Committee, Assocation for Women in Mathematics (
	Member, Organizing Committee, SAMSI Year of the Ecology (2014-2015)
	Member, Organizing Committee, 2009 SIAM SEAS Conference (2008-2009)
	Selection Committee, AWM sponsored travel awards for graduate students
	Evaluator, AWM Essay Contest (2012)
Associate Editor:	*The American Mathematical Monthly* (2011–present)
Editorial Board:	*Advances in Water Resources* (2010–present)
Guest Editor:	*Mathematical and Numerical Modeling of Flow and Transport* (2011)
Reviewer:	*SIAM Journal on Numerical Analysis*
	SIAM Journal on Scientific Computing
	Journal of Computational Physics
	Journal of Computational and Applied Mathematics
	Advances in Water Resources
	Computational Geosciences
	Transport in Porous Media
	Journal of Mathematical Analysis and Applications
	Journal of Applied Mathematics
	Computers and Mathematics
	Computers and Geosciences
	Advances in Applied Mathematics and Mechanics
	Concurrency and Computation: Practice and Experience
	Water Resources Management
	Proceedings of the Royal Society A
	Environmental Modelling & Software
	Communications in Nonlinear Science and Numerical Simulation
	NSF Review Panel, Division of Mathematical Sciences
	SIAM Computational Science and Engineering texts series
	Proposal submitted to NSF, Geosciences Directorate, Hydrologic Sciences Section
	Proposal submitted to the US Army Research Office, Mathematics Directorate
	Proposal submitted to DOE Office of Science ASCR
Scholastic Advisor:	Zeta Tau Alpha Sorority, Clemson University (2004-2007)

MISCELLANEOUS

Scientific Computing Qualifying Examination

Writer / grader: June 2003, June 2004, January 2005, June 2005, June 2006, July 2007, July 2011, January 2012, July 2012, January 2013, July 2014, January 2015, January 2016

Clemson Calculus Challenge

Exam writer: Spring 2011, Spring 2012, Spring 2013, Spring 2014, Spring 2015, Spring 2016

Morning proctor: Spring 2013, Spring 2014
Afternoon runner: Spring 2011, Spring 2012, Spring 2013
Grader: Spring 2009

Teaching Workshops

Attendee, "Case Study Teaching in Science", SUNY-Buffalo (Oct. 2005).

HONORS AND AWARDS

Phi Beta Kappa, Wofford College (1987)
Winton Rose Graduate Student Award, North Carolina State University (1999)

March 14, 2016