James Haley Adler

Tufts University Department of Mathematics
503 Boston Ave., Medford, MA 02155
james[dot]adler[at]tufts[dot]edu `http://math.tufts.edu/faculty/jadler/`

Education

- **University of Colorado at Boulder**, Department of Applied Mathematics - Boulder, CO
  - PhD in Applied Mathematics: May 2009
    Thesis: *Nested Iteration and First-Order Systems Least Squares for Incompressible Resistive Magnetohydrodynamics.*
    Committee: Tom Manteuffel, Steve McCormick, John Ruge, Bobby Philip, Scott Parker
  - Master of Science in Applied Mathematics: May 2006
- **Cornell University**, College of Arts and Sciences - Ithaca, NY
  - Bachelor of Arts in Mathematics, Cum Laude: May 2004
  - Bachelor of Arts in Physics, Concentration in Atmospheric Science, Cum Laude: May 2004

Professional Experience

- **Tufts University Department of Mathematics** - Medford, MA
  Director of Graduate Studies: July 2018 - Present
  Associate Professor: September 2016 - Present
  Assistant Professor: September 2011 - August 2016
- **Lawrence Livermore National Laboratory** - Livermore, CA
  Visiting Scientist/Professional: September 2013 - Present
- **Pennsylvania State University Mathematics Department** - State College, PA
  Research Assistant Professor: August 2009 - July 2011
- **Front Range Scientific Computing Inc.** - Boulder, CO
  Postdoc: June 2009 - August 2009
- **Lawrence Livermore National Laboratory** - Livermore, CA
  Visiting Student Researcher: May 2006 - August 2006; May 2007 - July 2007; May 2008 - June 2008
- **National Center for Atmospheric Research** - Boulder, CO
  Student Researcher: May 2005 - August 2005
- **National High Magnetic Field Laboratory REU Program** - Tallahassee, FL
  Student Researcher: May 2003 - August 2003
- **Cornell Ornithology Lab, Cornell University REU Program** - Ithaca, NY
  Research Assistant: May 2002 - December 2002

Research Interests

My research is in the area of computational mathematics and physics with applications in complex fluid and electromagnetic problems. My interest is in scientific computing, including both physical modeling as well as numerical computation. I am working on several projects including incompressible resistive magnetohydrodynamic problems, liquid crystal applications, and porous media, using various finite-element methods and multigrid.

Teaching Experience

- **Short Courses**

Graduate Workshop on Numerical Linear Algebra	May 2014	NUI Galway

- **Reading Courses**

Introduction to Finite Elements	Spring 2016, Spring 2018	Tufts
Nonlinear Finite Elements	Fall 2012	Tufts
Advanced Applied Mathematics	Fall 2012	Tufts

- **Multi-Section Course Coordinator**

MATH 42 (Multivariable Calculus)	Spring 2012, Fall 2016, Spring 2018	Tufts

- **Instructor**

Instructor for MATH 36	(Applied Calculus II)	Tufts
Instructor for MATH 42	(Multivariable Calculus)	Tufts
Instructor for MATH 51	(Differential Equations)	Tufts
Instructor for MATH 87	(Mathematical Modeling and Computation)	Tufts
Instructor for MATH 126	(Introduction to Numerical Analysis)	Tufts
Instructor for MATH 250	(Applied and Computational Math Seminar)	Tufts
Instructor for MATH 252	(Nonlinear Partial Differential Equations)	Tufts
Instructor for MATH 253	(Numerical Partial Differential Equations)	Tufts
Instructor for MATH 140	(Calculus with Analytical Geometry II)	PSU
Instructor for MATH 230	(Multivariable Calculus)	PSU
Instructor for MATH 141	(Calculus with Analytical Geometry II)	PSU
Oral Exam Facilitator for APPM 1350	(Calculus I)	UC Boulder
Co-instructor for APPM 5600	(Introduction to Numerical Analysis I)	UC Boulder
Teaching Assistant for APPM 2360	(Differential Equations)	UC Boulder
Co-instructor for APPM 7400	(Teaching and Research Excellence Seminar)	UC Boulder
Instructor for GEEN 1360	(Calculus II Workgroup)	UC Boulder
Teaching Assistant for APPM 1360	(Calculus II)	UC Boulder
Instructor for APPM 2450	(Calculus III Lab)	UC Boulder
Teaching Assistant for APPM 2350	(Calculus III)	UC Boulder

Professional Outreach and Service

- **Associate Editor:** 2019 - Present
  SIAM Journal on Matrix Analysis and Applications (SIMAX)

- **Referee for Various Journals:**
  SIAM Journal on Scientific Computing (SISC), SIAM Journal on Numerical Analysis (SINUM), Journal of Computational Physics (JCP), Journal of Numerical Linear Algebra and Applications (NLAA), the Journal of Numerical Methods of Partial Differential Equations (NMPDE), the Central European Journal of Mathematics (CEJM), the International Journal of Mathematics and Mathematical Sciences (IJJMMS), Computing in Science and Engineering (CiSE), Computers and Mathematics with Applications (CAMWA), and other proceedings journals.

- **Scientific Committee Member:** 2015 - Present
  International Conference on Large-Scale Scientific Computations - Sozopol, Bulgaria

- **Co-Organizer of Minisymposium on Development of Multilevel Methods for Coupled Physics Applications:** July 2018
  25th International Domain Decomposition Conference - Newfoundland, Canada

- **Co-Organizer of Special Session on Advanced Discretizations and Solvers for Coupled Systems of Partial Differential Equations:** June 2017
  11th International Conference on Large-Scale Scientific Computations - Sozopol, Bulgaria

- **Co-Organizer of Minisymposium on Advances in Finite Element Methods for Nonlinear Materials:** June 2016
  The Mathematics of Finite Elements and Applications 2016 - London, England

- **Faculty Advisor for SIAM Student Chapter:** September 2012 - May 2015
  Tufts University, Department of Mathematics - Medford, MA
- **Co-Organizer of Special Session on Numerical Methods for Multiphysics Problems:** June 2015
  10th International Conference on Large-Scale Scientific Computations - Sozopol, Bulgaria
- **Co-Organizer of Minisymposium on Advanced Finite-Element Methods for Nonlinear Materials and Fluids:** March 2015
  SIAM Conference on Computational Science and Engineering - Salt Lake City, UT
- **Co-Organizer of a Graduate Workshop on Numerical Linear Algebra:** May 12-14, 2014
  National University of Ireland, Galway - Galway, Ireland
- **Chair of Local Organizing Committee on Fluid Dynamics:** August 2014
  XXVI IUPAP Conference on Computational Physics (CCP2014) - Boston University
- **Co-Organizer of Special Session on Numerical Modeling of Fluids and Structures:** June 2013
  9th International Conference on Large-Scale Scientific Computations - Sozopol, Bulgaria
- **Co-Organizer of Minisymposium on Advanced Discretizations and Solvers for Complex Fluid Applications:** February 2013
  SIAM Conference on Computational Science and Engineering - Boston, MA
- **Co-Organizer of IMA PI Workshop on Numerical Simulations of Complex Fluids and MHD:** March 2010
  Pennsylvania State University, Department of Mathematics - State College, PA
- **Co-Organizer of Center for Computational Mathematics and Applications Seminar:** Sept. 2009 - May 2011
  Pennsylvania State University, Department of Mathematics - State College, PA
  Helped organize lunch seminars that brought in speakers to discuss various fields of computational mathematics and its applications. The seminar helped graduate students, postdocs, and faculty interact.
- **Lead Graduate Teacher:** August 2005 - May 2006
  University of Colorado, Department of Applied Mathematics - Boulder, CO
  Supported teacher training in the Department of Applied Mathematics by running orientation sessions and mentoring teaching assistants.
- **Alumni Ambassador:** September 2004 - February 2009
  Cornell Alumni Admissions Network - Boulder, CO
  Conducted admission interviews for high school students in the Boulder area seeking admissions to Cornell University's undergraduate programs.

Awards

External

- **Co-PI - NSF DMS-1620063, Computational Mathematics Program** - Oct. 2016 - Sept. 2019:
  Robust Solvers for Coupled Problems with Applications to Electromagnetism and Poromechanics
- **Co-PI - NSF DRL-1742369, STEM+C Partnerships Program** - Sept. 2017 - Sept. 2019:
  Collaborative Research: Integrating Computational Making Practices in STEM Teaching
- **PI - NSF DMS-1632111, Conferences and Workshops in the Mathematical Sciences - Computational Mathematics Program** July 2016:
  International Workshop on Numerical Analysis of Singularly Perturbed Differential Equations - Halifax, Canada
- **PI - NSF DMS-1216972, Computational Mathematics Program** - Sept. 2012 - Aug. 2016:
  Collaborative Research: Advanced Numerical Techniques for the Simulation of Magnetohydrodynamics
  Collaboration with Penn State University
- **Senior Personnel (Consultant) - NSF IIS-1217100, Cyberlearning EXP** - Sept. 2012 - Aug. 2015:
  SiMSAM: Bridging Student, Scientific, and Mathematical Models with Expressive Technologies

- **PI - NSF DMS-1265401, Conferences and Workshops in the Mathematical Sciences - Computational Mathematics Program** June 2013:
  Collaborative Research: Special Session on Numerical Modeling of Fluids and Structures at the 9th International Conference on Large-Scale Scientific Computations - Sozopol, Bulgaria
  Collaboration with Penn State University

Tufts Internal

- **Math Society Professor of the Year** - 2017/2018
  Department of Mathematics - Tufts University

- **Co-PI - Tufts Collaborates!** Jul. 2015 - Jun. 2016:
  Unlocking the Mystery of Ultra-Efficient Solar Cells under Concentration

- **Co-PI - Tufts Collaborates!** Jul. 2014 - Jun. 2015:
  Fast by Design: Better Liquid Crystal Devices through Theory, Simulation and Experiment

- **Honorable Mention in Teaching with Technology Awards Program** - May 2012:
  Tufts University

Publications

Refereed Publications

[1] J. H. Adler, Y. He, X. Hu, and S. P. MacLachlan. Vector-potential finite-element formulations for two-dimensional resistive magnetohydrodynamics. *Comput. Math. Appl.*, 77(2):476 – 493, 2019.

[2] J. H. Adler, X. Hu, L. Mu, and X. Ye. An a posteriori error estimator for the weak Galerkin least-squares finite-element method. *To Appear in J. Comput. Appl. Math.*, 2019.

[3] S. Sarkar, S. McKenney, P. Sabhachandani, J. H. Adler, X. Hu, D. Stroopinksy, J. Rosenblatt, D. Avigan, and T. Konry. Anti-myeloma activity and molecular logic operation by natural killer cells in microfluidic droplets. *Sens. Actuators, B-Chem.*, 282:580 – 589, 2019.

[4] J. H. Adler, F. J. Gaspar, X. Hu, C. Rodrigo, and L. T. Zikatanov. Robust block preconditioners for Biot's model. In Petter E. Bjørstad, Susanne C. Brenner, Lawrence Halpern, Hyea Hyun Kim, Ralf Kornhuber, Talal Rahman, and Olof B. Widlund, editors, *Domain Decomposition Methods in Science and Engineering XXIV*, volume 125 of Lecture Notes in Computational Science and Engineering, pages 3–16, Springer, Cham, 2018.

[5] J. H. Adler, I. Lashuk, and S. P. MacLachlan. Composite-grid multigrid for diffusion on the sphere. *Numer. Linear Algebra Appl.*, 25(1):e2115, 2018.

[6] J. H. Adler, I. Lashuk, S. P. MacLachlan, and L. T. Zikatanov. Discrete energy laws for the first-order system least-squares finite-element approach. In Ivan Lirkov and Svetozar Margenov, editors, *Large-Scale Scientific Computing*, volume 10665 of *Lecture Notes in Computer Science*, pages 3–20. Springer, Cham, 2018.

[7] D. B. Emerson, P. E. Farrell, J. H. Adler, S. P. MacLachlan, and T. J. Atherton. Computing equilibrium states of cholesteric liquid crystals in elliptical channels with deflation algorithms. *Liq. Cryst.*, 45(3):341–350, 2018.

[8] C. Rodrigo, X. Hu, P. Ohm, J. H. Adler, F. J. Gaspar, and L. T. Zikatanov. New stabilized discretizations for poroelasticity and the Stokes' equations. *Comput. Methods Appl. Mech. Engrg.*, 341:467–484, 2018.

[9] J. H. Adler, T. R. Benson, and S. P. MacLachlan. Preconditioning a mass-conserving discontinuous Galerkin discretization of the Stokes equations. *Numer. Linear Algebra Appl.*, 24(3):e2047, 2017.

[10] J. H. Adler, D. B. Emerson, P. E. Farrell, and S. P. MacLachlan. Combining deflation and nested iteration for computing multiple solutions of nonlinear variational problems. *SIAM J. Sci. Comput.*, 39(1):B29–B52, 2017.

[11] J. H. Adler, X. Hu, and L. T. Zikatanov. Robust solvers for Maxwell's equations with dissipative boundary conditions. *SIAM J. Sci. Comput.*, 39(5):S3–S23, 2017.

[12] J. H. Adler, T. R. Benson, E. C. Cyr, S. P. MacLachlan, and R. S. Tuminaro. Monolithic multigrid methods for two-dimensional resistive magnetohydrodynamics. *SIAM J. Sci. Comput.*, 38(1):B1–B24, 2016.

[13] J. H. Adler, D. B. Emerson, S. P. MacLachlan, and T. A. Manteuffel. Constrained optimization for liquid crystal equilibria. *SIAM J. Sci. Comput.*, 38(1):B50–B76, 2016.

[14] J. H. Adler, S. P. MacLachlan, and N. Madden. A first-order system Petrov–Galerkin discretization for a reaction–diffusion problem on a fitted mesh. *IMA J. Numer. Anal.*, 36(3):1281–1309, 2016.

[15] A. DeBenedictis, T. J. Atherton, C. Anquetil-Deck, D. J. Cleaver, D. B. Emerson, M. Wolak, and J. H. Adler. Competition of lattice and basis for alignment of nematic liquid crystals. *Phys. Rev. E*, 92:042501, Oct 2015.

[16] J. H. Adler, T. J. Atherton, T. R. Benson, D. B. Emerson, and S. P. MacLachlan. Energy minimization for liquid crystal equilibrium with electric and flexoelectric effects. *SIAM J. Sci. Comput.*, 37(5):S157–S176, 2015.

[17] J. H. Adler, T. J. Atherton, D. B. Emerson, and S. P. MacLachlan. An energy-minimization finite-element approach for the Frank–Oseen model of nematic liquid crystals. *SIAM J. Numer. Anal.*, 53(5):2226–2254, 2015.

[18] J. H. Adler and V. Nistor. Graded mesh approximation in weighted Sobolev spaces and elliptic equations in 2D. *Math. Comp.*, 84(295):2191–2220, 2015.

[19] J. H. Adler, L. Dorfmann, D. Han, S. MacLachlan, and C. Paetsch. Mathematical and computational models of incompressible materials subject to shear. *IMA J. Appl. Math.*, 79(5):889–914, 2014.

[20] J. H. Adler and P. S. Vassilevski. Error analysis for constrained first-order system least-squares finite-element methods. *SIAM J. Sci. Comput.*, 36(3):A1071–A1088, 2014.

[21] J. H. Adler, M. Brezina, T. A. Manteuffel, S. F. McCormick, J. W. Ruge, and L. Tang. Island coalescence using parallel first-order system least squares on incompressible resistive magnetohydrodynamics. *SIAM J. Sci. Comput.*, 35(5):S171–S191, 2013.

[22] J. H. Adler, V. Petkov, and L. T. Zikatanov. Numerical approximation of asymptotically disappearing solutions of Maxwell's equations. *SIAM J. Sci. Comput.*, 35(5):S386–S401, 2013.

[23] J. H. Adler and P. S. Vassilevski. Improving conservation for first-order system least-squares finite-element methods. In *Numerical solution of partial differential equations: theory, algorithms, and their applications*, volume 45 of *Springer Proc. Math. Stat.*, pages 1–19. Springer, New York, 2013.

[24] T. J. Atherton and J. H. Adler. Competition of elasticity and flexoelectricity for bistable alignment of nematic liquid crystals on patterned substrates. *Phys. Rev. E*, 86:040701, Oct 2012.

[25] J. H. Adler, J. Brannick, C. Liu, T. Manteuffel, and L. Zikatanov. First-order system least squares and the energetic variational approach for two-phase flow. *J. Comput. Phys.*, 230(17):6647–6663, 2011.

[26] J. H. Adler, T. A. Manteuffel, S. F. McCormick, J. W. Nolting, J. W. Ruge, and L. Tang. Efficiency based adaptive local refinement for first-order system least-squares formulations. *SIAM J. Sci. Comput.*, 33(1):1–24, 2011.

[27] J. H. Adler, T. A. Manteuffel, S. F. McCormick, and J. W. Ruge. First-order system least squares for incompressible resistive magnetohydrodynamics. *SIAM J. Sci. Comput.*, 32(1):229–248, 2010.

[28] J. H. Adler, T. A. Manteuffel, S. F. McCormick, J. W. Ruge, and G. D. Sanders. Nested iteration and first-order system least squares for incompressible, resistive magnetohydrodynamics. *SIAM J. Sci. Comput.*, 32(3):1506–1526, 2010.

[29] J. H. Adler, T. Manteuffel, S. McCormick, J. Nolting, J. Ruge, and L. Tang. An efficiency-based adaptive refinement scheme applied to incompressible, resistive magnetohydrodynamics. In Ivan Lirkov, Svetozar Margenov, and Jerzy Waśniewski, editors, *Large-Scale Scientific Computing*, volume 5910 of *Lecture Notes in Computer Science*, pages 1–13. Springer Berlin Heidelberg, 2010.

Proceedings

[1] M. A. Stevens, C. Downs, D. B. Emerson, J. H. Adler, S. P. MacLachlan, and T. E. Vandervelde. Studying anomalous open-circuit voltage drop-out in concentrated photovoltaics using computational numerical analysis. In *Proceedings of the Photvoltaic Specialists Conference (PVSC), 42nd IEEE*, New Orleans, June 14-19 2015.

[2] M. A. Stevens, C. Downs, D. B. Emerson, J. H. Adler, S. P. MacLachlan, and T. E. Vandervelde. Predicting VOC in concentrated photovoltaics using computation numerical analysis. In *30th European Photovoltaic Solar Energy Conference (EUPVSC) Proceedings*, Hamburg, Germany, 2015.

[3] T. J. Atherton and J. H. Adler. Multistable alignment of nematic liquid crystals on patterned surfaces. In *Proceedings of the International Meeting on Information Display*, Daegu, Korea, August 28-31 2012.

[4] J. H. Adler, T. A. Manteuffel, S. F. McCormick, J. W. Nolting, J. W. Ruge, and L. Tang. A parallel adaptive first-order system least-squares (FOSLS) algorithm for incompressible, resisitive magnetohydrodynamics (MHD). In *Proceedings of the Ninth International Conference of Numerical Analysis and Applied Mathematics*, Halkidiki, Greece, September 19-24 2011.

Technical Reports

[1] J. H. Adler, T. J. Atherton, D. B. Emerson, and S. P. MacLachlan. An energy minimization finite-element approach for the Frank-Oseen model of nematic liquid crystals: Continuum and discrete analysis. Technical report, Tufts University, 2014.

[2] J. H. Adler, D. B. Emerson, S. P. MacLachlan, and T. A. Manteuffel. Constrained optimization for liquid crystal equilibria: Extended results. Technical report, Tufts University, 2014.

Invited Talks and Visits

- **Numerical Analysis Seminar - University of Maryland College Park:**
  December 5, 2017 - Baltimore, MD
  Energy-Minimization, Finite Elements, and Multilevel Methods for Liquid Crystals
- **Differential Equations Seminar - University of Maryland Baltimore County:**
  November 13, 2017 - Baltimore, MD
  Energy-Minimization, Finite Elements, and Multilevel Methods for Liquid Crystals
- **Visit to University of Maryland**
  Fall 2017 - College Park, MD
  Short-term visit to collaborate with Howard Elman
- **Plenary Speaker - 11th International Conference on Large-Scale Scientific Computations:**
  June 7, 2017 - Sozopol, Bulgaria
  Energy-Minimization, Finite Elements, and Multilevel Methods for Liquid Crystals
- **Oberseminar in Numerische Mathematik - University of Duisburg-Essen:**
  May 30, 2017 - Essen, Germany
  Numerical Approximation of Asymptotically Disappearing Solutions of Maxwell's Equations
- **Center for Computational Mathematics and Applications Colloquium - Penn State University:**
  March 20, 2017 - State College, PA
  Energy Minimization and a Deflation Technique for Detecting Multiple Liquid Crystal Equilibrium States
- **Department of Mathematics Colloquium - Ithaca College:**
  November 17, 2016 - Ithaca, NY
  Energy Minimization and a Deflation Technique for Detecting Multiple Liquid Crystal Equilibrium States
- **Eighth Singular Days:**
  June 28, 2016 - Nancy, France
  Graded Mesh Approximation in Weighted Sobolev Spaces and Elliptic Equations in 2D
- **Minimum Residual and Least-Squares Finite-Element Methods Workshop:**
  November 2, 2015 - Delft, Netherlands
  A First-Order System Petrov-Galerkin Discretization for Singularly Perturbed Reaction-Diffusion
- **Workshop on Finite Element Methods - Beijing Institute for Scientific and Engineering Computing:**
  August 8, 2015 - Beijing, China
  Numerical Approximation of Asymptotically Disappearing Solutions of Maxwell's Equations

- **Seminar on Numerical Methods for Partial Differential Equations - MIT:**
  April 8, 2015 - Cambridge, MA
  An Energy-Minimization Finite-Element Approach for the Frank-Oseen Model of Nematic Liquid Crystals
- **Numerical Mathematics Workgroup Seminar - Universität Duisburg-Essen:**
  July 14, 2014 - Essen, Germany
  An Energy-Minimization Finite-Element Approach for the Frank-Oseen Model of Nematic Liquid Crystals
- **Visit to the National University of Ireland, Galway:**
  May 11 - 16, 2014 - Galway, Ireland
  Short-term visit to collaborate with Niall Madden
- **Visit to University of Colorado at Boulder:**
  March 30 - April 5, 2014 - Boulder, CO
  Short-term visit to collaborate with Tom Manteuffel
- **Center for Computational and Applied Mathematics Lunch Seminar - Purdue University:**
  January 24, 2014 - West Lafayette, IN
  An Energy-Minimization Finite-Element Approach for the Frank-Oseen Model of Nematic Liquid Crystals
- **Visit to University of Illinois at Urbana-Champaign:**
  January 22, 2014 - Urbana, IL
  Short-term visit to collaborate with Luke Olson
- **Visiting Scientist - Penn State University:**
  November 2013 - State College, PA
  Short-term visit to collaborate with James Brannick, Chun Liu, and Ludmil Zikatanov
- **Visiting Scientist - Lawrence Livermore National Laboratory:**
  September 2013-September 2014 - Livermore, CA
  Short-term visits to the Center for Applied Scientific Computing (CASC) to collaborate with Panayot Vassilevski
- **Center for Computational Mathematics and Applications Colloquium - Penn State University:**
  February 8, 2013 - State College, PA
  Constrained First-Order System Least Squares for Improved Mass Conservation and Complex Fluids
- **Center for Computational Mathematics and Applications Luncheon Seminar - Penn State University:**
  February 8, 2013 - State College, PA
  Numerical Approximation of Asymptotically Disappearing Solutions of Maxwell's Equations
- **Least Squares Finite Elements in Fluid and Solid Mechanics Workshop - Leibniz Universität:**
  June 21, 2012 - Hannover, Germany
  Constrained First-Order System Least Squares for Improved Mass Conservation and Complex Fluids
- **Visit to Würzburg University:**
  June 19 - 20, 2012 - Würzburg, Germany
  First-Order System Least-Squares, Multigrid, and Adaptive Local Refinement for Complex Fluids
- **Schlumberger-Tufts Computational and Applied Math Seminar - Schlumberger:**
  April 10, 2012 - Cambridge, MA
  First-Order System Least-Squares, Multigrid, and Adaptive Local Refinement for Complex Fluids
- **Tufts Physics Condensed Matter Seminar Series - Tufts University:**
  January 19, 2012 - Medford, MA
  Adaptive Finite Elements and Multigrid for Complex Fluids and Magnetohydrodynamics
- **Applied and Computational Mathematics Seminar (ACMS) - Dartmouth College:**
  January 17, 2012 - Hanover, NH
  Nested Iteration, Algebraic Multigrid, and First-Order Least Squares System Finite-Element Method for Magnetohydrodynamics
- **Visit to Centre de Recerca Matemática (CRM):**
  June 11 - 17, 2011 - Bellaterra, Spain
  Nested Iteration, Algebraic Multigrid and Adaptive Local Refinement for MHD and Complex Fluids
- **Visit to Radon Institute for Computational and Applied Mathematics (RICAM):**
  May 30 - June 4, 2011 - Linz, Austria
  Collaboration with Johannes Kraus
- **Computational Math Seminar - University of Colorado:**
  March 9, 2010 - Boulder, CO
  Energetic Variational Approach for Magnetohydrodynamics
- **IMA PI Workshop on Numerical Simulations of Complex Fluids:**
  March 3, 2010 - State College, PA
  First-Order System Least Squares Approach to Resistive Magnetohydrodynamics
- **AMR08 Applied Mathematics Principal Investigators Meeting:**
  October 15, 2008 - Argonne National Laboratory, IL
  Nested Iteration First-Order System Least Squares Algebraic Multigrid on Resistive Magnetohydrodynamics