
Marvin L. Adams

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FAMILY: Married (1980-present) with three children

EDUCATION

1986 Ph.D, Nuclear Engineering, University of Michigan, Ann Arbor, Michigan.
1984 M.S., Nuclear Engineering, University of Michigan, Ann Arbor, Michigan.
1977-81 B.S., Nuclear Engineering, Mississippi State University, Starkville, Mississippi.

HONORS & AWARDS

2006 George Armistead, Jr. '23 Faculty Fellow, Texas A&M University Engineering
2003 Fellow of the Texas Engineering Experiment Station
2001 Fellow of the American Nuclear Society
2001 Best Paper, Reactor Physics Division, American Nuclear Society Annual Meeting
2000 University Faculty Fellow, Texas A&M University
1998 Mark Mills Award (best nuclear engineering student research in U.S.): advisee C. L. Castrianni
1997 Tenneco Award for Meritorious Teaching of Engineering, Texas A&M University
1995 Center for Teaching Excellence Scholar, Texas A&M University
1986 Most Outstanding Graduate Student, University of Michigan Department of Nuclear Engineering
1982-86 Fellowship, U.S. DOE Nuclear Science & Engineering & Radioactive Waste Management Program
1980-81 Fellowship, Institute of Nuclear Power Operations
1981 Charles T. Chave Award ("Most Outstanding U.S. Nuclear Engineering Undergraduate Student")

PROFESSIONAL EXPERIENCE

2002- Professor of Nuclear Engineering, Texas A&M University.
2005- Associate Vice President for Research, Texas A&M University.
2007- Director, Institute for National Security Education and Research, Texas A&M University.
2006-07 Director, Center for Large-scale Scientific Simulation, Texas A&M University
1998-99 Associate Head, Department of Nuclear Engineering, Texas A&M University.
1997-2002 Associate Professor of Nuclear Engineering, Texas A&M University.
1992-97 Assistant Professor of Nuclear Engineering, Texas A&M University.
2006- Consultant, Mitre Corporation.
1998- Consultant, Los Alamos National Laboratory.
1992- Consultant, Lawrence Livermore National Laboratory.
2000-06 Consultant, Sandia National Laboratories.
1986-92 Code Physicist, Lawrence Livermore National Laboratory.
1984 DOE Fellow, Los Alamos National Laboratory (summer practicum).
1982 Nuclear Engineer, Tennessee Valley Authority.
1977-80 Cooperative Education Student, Reactor Engineering Section, Tennessee Valley Authority's Sequoyah Nuclear Plant (alternating semesters).

PROFESSIONAL SERVICE

National and International Panels

National Academy Panel on Evaluation of Quantification of Margins and Uncertainty (QMU) Methodology Applied to the Certification of the Nation's Nuclear Weapons Stockpile, 2007-08
 Lawrence Livermore National Laboratory Science and Technology Committee, 2007-present
 Los Alamos National Laboratory Science and Technology Committee, 2006-present
 External Review Committee, Weapons Science and Engineering, Los Alamos National Laboratory, 2007-present
 External Review Committee, Weapons and Complex Integration, Lawrence Livermore National Laboratory, 2008-present
 U.S. Dept. of Energy Panel on Predictive Science in Advanced Simulation and Computing, 2004-present
 External Review Committee, Lawrence Livermore National Lab, Computations Directorate, 2007
 External Review Committee, Los Alamos National Lab, Applied Physics Division, member 1998-2005; chair 2005-2006
 External Review Committee, Sandia National Laboratory Hostile-Environment Code Project, 2000-2006
 U.S. Dept. of Energy ASCI Burn Code Review Panel, 1999-2004
 US-Russia Joint Technical Working Group: water-reactor options for disposition of weapons Pu, 1996-2002
 U.S. Dept. of Energy Blue-Ribbon Panel on Nuclear Engineering and Research Reactors, 1999-2000
 Advisory Committee, Los Alamos National Laboratory Transport Methods Group, 1995-96
 Review Panel, U.S. Dept. of Energy Research Program, 1993

American Nuclear Society

Chair, Mathematics & Computations Division, 1997-98
 Associate Technical Program Chair, International Topical Meeting, Portland, 1995
 Vice-Chair, Mathematics & Computations Division, 1996-97
 Secretary, Mathematics & Computations Division, (1 year)
 Executive Committee, Mathematics & Computations Division, (3 years)
 Nominating Committee, 2005
 Chair, Nominating Committee, Mathematics & Computations Division, 1998
 Nominating Committee, Mathematics & Computations Division, 1997 and 2001
 Technical Program Committee, Reactor Physics Division, 2001-2004
 Technical Program Committee: Math & Computation Division Topical Meetings 1989, '93, '95, '97, '99, '01, '03, '05; ANS national meetings 1989, '90, '91, '92, '94, '96, '97, '98, '99, '00, '01, '02, '03, '04
 Organized Special Sessions: Math & Computation Division Topical Meetings 1995, 2005; ANS national meetings 1997, 2003; Reactor Physics Topical Meeting 2004.
 Session Chair: Mathematics & Computation Division Topical Meetings 1995, '97, '99, '01, '03, '05; ANS national meetings 1991, '92, '94, '97, '03; Reactor Physics Division Topical Meetings '02, '04
 Development Committee: Member, 1995
 Advisor, Texas A&M University Student Branch, 1992-98

Journals

Editorial Board, *Transport Theory and Statistical Physics*, 1994-present
 Reviewer for *Physical Review*, *Journal of Computational Physics*, *Nuclear Science and Engineering*, *Transport Theory and Statistical Physics*, *Annals of Nuclear Engineering*, *SIAM Journal of Scientific Computing*, *SIAM Journal of Numerical Analysis*, *Progress in Nuclear Energy*, *Medical Physics*)
 Reviewer, *Mathematical Reviews*, 1990-1996

Other

19th International Conference on Transport Theory, Budapest, Hungary, 2005: Tech. Program Committee.
 Ed Larsen: Gentleman, Unsurpassed Asymptoticist, Professor, Orator: Ann Arbor, MI, 2004: Co-Chair.

18th International Conference on Transport Theory, Rio de Janeiro, Brazil, 2003: Technical Program Committee; Co-organizer of Special Session
 17th International Conference on Transport Theory, London, England, 2001: Technical Program Committee; Co-organized Special Session; Session Chair
 On Latest Developments and Fundamental Advances in Radiative Transfer: Pasadena, CA, 1996: Co-Chair.
 Nuclear Reactor Safety Board, Texas A&M University, 1993-present
 Chair, Departmental Computing Committee, Texas A&M University, 1993-98, and 1999-present
 Chair, Departmental Scholarship Committee, Texas A&M University, 1998-2002 and 2005-present
 Graduate Coordinator, Texas A&M University Department of Nuclear Engineering, 2002-2004

PUBLICATIONS

Refereed Journal Articles (* indicates student of M. L. Adams)

27. A. E. Maslowski* and M. L. Adams, "A New Approach to the Iterative Solution of Transport Problems," to be submitted to *J. Comput. Physics* in January 2008.
26. A. E. Maslowski* and M. L. Adams, "Behavior of Finite Element Discretizations of the Slab-Geometry Transport Equation. Part II: Discontinuous FEMs," to be submitted to *Nucl. Sci. Eng.* in January 2008.
25. A. E. Maslowski* and M. L. Adams, "Behavior of Finite Element Discretizations of the Slab-Geometry Transport Equation. Part I: Continuous FEMs," to be submitted to *Nucl. Sci. Eng.* in January 2008.
24. T. S. Bailey*, M. L. Adams, B. Yang, and M. R. Zika, "A Piecewise Linear Finite Element Discretization of the Diffusion Equation for Arbitrary Polyhedral Grids," to appear in *J. Comput. Physics*, (2008).
23. K. T. Clarno* and M. L. Adams, "Capturing the Effects of Unlike Neighbors in Single-Assembly Calculations," *Nucl. Sci. Eng.*, **149**, 182-196 (2005).
22. H. Hiruta, D. Y. Anistratov, and M. L. Adams, "Splitting Method for Solving the Coarse-Mesh Discretized Low-Order Quasidiffusion Equations," *Nucl. Sci. Eng.*, **149**, 162-181 (2005).
21. M. L. Adams, "'I Have An Idea!' An Appreciation of Edward W. Larsen's Contributions to Particle Transport," *Annals of Nuclear Energy*, **31**, No. 17, 1963-1986 (2004).
20. G. Alonso-Vargas* and M. L. Adams, "A Mixed-Oxide Assembly Design for Rapid Disposition of Weapons Plutonium in Pressurized Water Reactors," *Nucl. Sci. Eng.*, **141**, 111-128 (2002).
19. M. L. Adams and E. W. Larsen, "Fast Iterative Methods for Discrete-Ordinates Particle Transport Calculations," *Progress in Nuclear Energy*, **40**, No. 1, 3-159 (2002).
18. S. D. Pautz* and M. L. Adams, "An Asymptotic Study of Discretized Transport Equations in the Fokker-Planck Limit," *Nucl. Sci. Eng.*, **140**, 51-69 (2002).
17. M. L. Adams, "Discontinuous Finite Element Methods in Thick Diffusive Problems," *Nucl. Sci. Eng.*, **137**, 298-333 (2001).
16. S. L. Eaton*, C. A. Beard, and M. L. Adams, "Calculational analysis of structural activation induced by 20-100 MeV proton beam loss in high-power linear accelerators," *Nucl. Instr. and Meth. B*, **168**, 88-97 (2000).
15. M. R. Zika* and M. L. Adams, "Transport Synthetic Acceleration with Opposing Reflecting Boundary Conditions," *Nucl. Sci. Eng.*, **134**, 159-170 (2000).
14. M. R. Zika* and M. L. Adams, "Transport Synthetic Acceleration for Long-Characteristics Assembly-Level Transport Problems," *Nucl. Sci. Eng.*, **134**, 135-158 (2000).
13. M. L. Adams and P. F. Nowak, "Asymptotic Analysis of a Method for Time- and Frequency-Dependent Radiative Transfer," *J. Comput. Physics*, **146**, 366-403 (1998).
12. M. L. Adams, T. A. Wareing, and W. F. Walters, "Characteristic Methods in Thick Diffusive Problems," *Nucl. Sci. Eng.*, **130**, 18-46 (1998).
11. C. L. Castrianni* and M. L. Adams, "A Nonlinear Corner-Balance Spatial Discretization for Transport on Arbitrary Grids," *Nucl. Sci. Eng.*, **128**, 278-296 (1998).
10. D. Yu. Anistratov, M. L. Adams, and E. W. Larsen, "Acceleration of the Nonlinear Corner-Balance Scheme by Averaged Flux Method," *J. Comput. Physics*, **135**, 66-75 (1997).

9. M. L. Adams, "Subcell Balance Methods for Radiative Transfer on Arbitrary Spatial Grids," *Transport Theory & Stat. Phys.*, **26**, Nos. 4 & 5, 385-432 (1997).
8. S. L. Eaton*, C. A. Beard, and M. L. Adams, "Comparison of LAHET Code System Calculations to Experimental Results for Protons of Energies Under 50 MeV Incident on Copper and Iron," *Nucl. Sci. Eng.*, **125**, 249-256 (1997).
7. G. L. Ramoné*, M. L. Adams, and P. F. Nowak, "Transport-Synthetic Acceleration Methods for Transport Iterations," *Nucl. Sci. Eng.*, **125**, 257-283 (1997).
6. M. L. Adams and W. R. Martin, "Diffusion-Synthetic Acceleration of Discontinuous Finite-Element Transport Iterations," *Nucl. Sci. Eng.*, **111**, 145-167 (1992).
5. C. Börgers, E. W. Larsen, and M. L. Adams, "The Asymptotic Diffusion Limit of a Linear Discontinuous Discretization of a Two-Dimensional Transport Equation," *J. Comput. Physics*, **98**, 285-300 (1992).
4. M. L. Adams, "Even-Parity Finite-Element Transport Methods in the Diffusion Limit," *Progress in Nuclear Energy*, **25**, 159-198 (1991).
3. M. L. Adams, E. W. Larsen, and G. C. Pomraning, "Benchmark Results for Particle Transport in a Binary Markov Statistical Medium," *J. Quant. Spectrosc. Radiat. Transfer*, **42**, 253-266 (1989).
2. M. L. Adams and W. R. Martin, "Boundary-Projection Acceleration: A New Approach to Synthetic Acceleration of Transport Calculations," *Nucl. Sci. Eng.*, **100**, 177-189 (1988).
1. M. L. Adams and W. R. Martin, "Slab Geometry Transport Spatial Discretization Schemes with Infinite-Order Convergence," *Transport Theory & Stat. Phys.*, **15**, 651 (1986).

Refereed Full Conference Papers (* indicates student of M. L. Adams)

16. J. C. Stone* and M. L. Adams, "Progress on Adaptive Discrete-Ordinates Algorithms and Strategies," *Proc. International Conf. on Nuclear Mathematical and Computational Sciences*, Gatlinburg, TN, April 6-10 (2003).
15. K. T. Clarno* and M. L. Adams, "Capturing The Effects of Unlike Neighbors in Single-Assembly Calculations," *Proc. International Conf. on Nuclear Mathematical and Computational Sciences*, Gatlinburg, TN, April 6-10 (2003).
14. J. H. Chang* and M. L. Adams, "Analysis of Transport Synthetic Acceleration For Highly Heterogeneous Problems," *Proc. International Conf. on Nuclear Mathematical and Computational Sciences*, Gatlinburg, TN, April 6-10 (2003). **Best Student Paper Award**
13. H. G. Stone* and M. L. Adams, "A Piecewise Linear Finite Element Basis with Application to Particle Transport," *Proc. International Conf. on Nuclear Mathematical and Computational Sciences*, Gatlinburg, TN, April 6-10 (2003).
12. H. Hiruta, D. Y. Anistratov, and M. L. Adams, "Splitting Method For Solving The Coarse-Mesh Discretized Low-Order Quasidiffusion Equations," *Proc. International Conf. on Nuclear Mathematical and Computational Sciences*, Gatlinburg, TN, April 6-10 (2003).
11. C. Gesh* and M. L. Adams, "Finite Element Solutions of Second-Order Forms of the Transport Equation at the Interface Between Diffusive and Non-Diffusive Regions," *Proc. International Meeting on Mathematical Methods for Nuclear Applications*, Salt Lake City, UT, Sep. 9-13 (2001).
10. M. Mathis, N. Amato, and M. L. Adams, "A General Performance Model for Parallel Sweeps on Orthogonal Grids for Particle Transport Calculations," *Proc. International Conf. on Supercomputing*, Santa Fe, NM, May 8-11 (2000).
9. K. G. Thompson* and M. L. Adams, "A Spatial Discretization for Solving the Transport Equation on Unstructured Grids of Polyhedra," *Proc. International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications*, Madrid, Spain, September 27-30, 1999, Vol. II, 1196-1204, Senda Editorial (1999). **invited**
8. S. D. Pautz* and M. L. Adams, "An Asymptotic Study of Discretized Transport Equations in the Fokker-Planck Limit," *Proc. International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications*, Madrid, Spain, September 27-30, 1999, Vol. I, 637-646, Senda Editorial (1999).

7. S. D. Pautz*, J. E. Morel, and M. L. Adams, "An Angular Multigrid Acceleration Method for S_N Equations with Highly Forward-Peaked Scattering," *Proc. International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications*, Madrid, Spain, September 27-30, 1999, Vol. I, 647-656, Senda Editorial (1999).
6. C. J. Gesh* and M. L. Adams, "Even- and Odd-Parity Finite Element Solutions to Thick Diffusive Discrete Ordinates Problems," *Proc. International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications*, Madrid, Spain, September 27-30, 1999, Vol. II, 1174-1184, Senda Editorial (1999). **invited; Best Student Paper Award.**
5. M. R. Zika* and M. L. Adams, "Transport Synthetic Acceleration for the Long Characteristics Discretization," *Proc. Joint International Conference on Mathematical Methods and Supercomputing for Nuclear Applications*, Saratoga Springs, NY, October 1997, Vol.1, 353-363 (1997).
4. C. L. Castrianni* and M. L. Adams, "Asymptotic Diffusion Limit of Nonlinear Discontinuous Finite Element Transport Discretizations in One Dimension," *Proc. Joint International Conference on Mathematical Methods and Supercomputing for Nuclear Applications*, Saratoga Springs, NY, October 1997, Vol. 2, 1476-1486 (1997). **invited**
3. C. L. Castrianni* and M. L. Adams, "A Nonlinear Corner-Balance Spatial Discretization for Transport on Arbitrary Grids," *Proc. Int. Conf. Advances in Mathematics and Computation, Reactor Physics, and Environmental Analysis*, Portland, OR, April 30-May 4, Vol. 2, p. 916 (1995). **invited; Best Student Paper Award.**
2. M. L. Adams, W. F. Walters, and T. A. Wareing, "Characteristics Methods in Thick Diffusive Problems," *Proc. Int. Conf. Advances in Mathematics and Computation, Reactor Physics, and Environmental Analysis*, Portland, OR, April 30-May 4, Vol. 1, p. 349 (1995).
1. M. L. Adams, E. W. Larsen, and P. F. Nowak, "The Asymptotic Diffusion Limit of Continuous and Discrete Steady-State Multigroup Radiative Transfer Problems," *Proc. Int. Conf. Advances in Mathematics and Computation, Reactor Physics, and Environmental Analysis*, Portland, OR, April 30-May 4, Vol. 1, p. 360 (1995).

Refereed Conference Summaries (* indicates student of M. L. Adams)

25. M. S. Reed*, M. L. Adams, and J. E. Morel, "Transport Error Estimates for Adaptive Refinement of Spatial Grids," *Trans. Amer. Nucl. Soc.*, **95**, (2006).
24. W. D. Hawkins* and M. L. Adams, "Consistent Stretched Transport Synthetic Acceleration of One-Dimensional S_n Problems," *Trans. Amer. Nucl. Soc.*, **91**, (2004).
23. K. T. Clarno* and M. L. Adams, "Recent Improvements in Boundary Conditions for Single-Assembly Calculations," *Trans. Amer. Nucl. Soc.*, **89**, 599 (2003).
22. P. McIntyre, A. Sattarov, M. L. Adams, F. R. Best, C. Kurwitz, and Z. Wu*, "Accelerator-Driven Thorium Cycle Power Reactor: Design and Performance Calculations," *Proc. GLOBAL 2003, Atoms for Prosperity: Updating Eisenhower's Global Vision for Nuclear Energy*, New Orleans, Nov. 16-20 (2003).
21. N. Valette* and M. L. Adams, "Solution Methods for the Quasi-Diffusion Equations," *Trans. Amer. Nucl. Soc.*, **87**, 139-140 (2002).
20. N. Valette* and M. L. Adams, "Accuracy of Quasi-Diffusion Discretizations," *Trans. Amer. Nucl. Soc.*, **87**, 136-139, (2002).
19. H. G. Stone* and M. L. Adams, "A Piecewise Linear Finite Element Basis With Application to Particle Transport," *Trans. Amer. Nucl. Soc.*, **87**, 130-133 (2002).
18. M. L. Adams, "Deterministic Transport Methods for Reactor Analysis," *Trans. Amer. Nucl. Soc.*, **81**, 48 (2001). **invited**
17. M. L. Adams, "Angular Dependence of the Fast Flux in Reactor Lattices," *Trans. Amer. Nucl. Soc.*, **81**, 212 (2001). **Best Reactor-Physics Paper Award**
16. G. Alonso*, D. Yu. Anistratov, and M. L. Adams, "Comparison of Code Libraries for Plutonium Isotopes," *Trans. Amer. Nucl. Soc.*, **80**, 234-236 (2000).
15. D. Yu. Anistratov and M. L. Adams, "Consistent Coarse-Mesh Discretization of the Low-Order Equations of the Quasidiffusion Method," *Trans. Amer. Nucl. Soc.*, **80**, 250-251 (2000).

14. C. L. Castrianni* and M. L. Adams, "Nonlinear Discontinuous Finite Element Transport Solutions in the Thick Diffusion Limit in Cartesian Coordinates," *Trans. Amer. Nucl. Soc.*, **79**, 150-152 (1998).
13. M. L. Adams, "Discontinuous Finite Element Solutions of Slab-Geometry Discrete Ordinates Equations," *Trans. Amer. Nucl. Soc.*, **79**, 141-142 (1998).
12. D. Yu. Anistratov, M. L. Adams, and E. W. Larsen, "Acceleration Method for the Nonlinear Corner-Balance Scheme," *Trans. Amer. Nucl. Soc.*, **75**, (1996).
11. S. D. Pautz* and M. L. Adams, "An Asymptotic Study of the Transport Equation in the Fokker-Planck Limit with Angular and Spatial Discretization," *Trans. Amer. Nucl. Soc.*, **73**, 193 (1995).
10. C. L. Castrianni* and M. L. Adams, "A Nonlinear Corner-Balance Method for Spatially Discretizing the Transport Equation," *Trans. Amer. Nucl. Soc.*, **71**, 265 (1994).
9. M. L. Adams, "Slab-Geometry Discrete-Ordinates Methods," *Trans. Amer. Nucl. Soc.*, **71**, 217 (1994). *invited*
8. T. L. Eaton* and M. L. Adams, "A New Corner-Balance/Linear-Discontinuous Method for Transport in Slab Geometry," *Trans. Amer. Nucl. Soc.*, **70**, 158 (1994).
7. M. L. Adams and T. A. Wareing, "Diffusion-Synthetic Acceleration Given Anisotropic Scattering, General Quadratures, and Multiple Dimensions," *Trans. Amer. Nucl. Soc.*, **68**, 203 (1993).
6. G. B. Zimmerman and M. L. Adams, "Algorithms for Monte-Carlo Particle Transport in Binary Statistical Mixtures," *Trans. Amer. Nucl. Soc.*, **64**, 287 (1991). *invited*
5. M. L. Adams and E. W. Larsen, "Synthetic Acceleration of One-Group S_N k -Eigenvalue Problems," *Trans. Amer. Nucl. Soc.*, **57**, 105 (1988).
4. P. F. Nowak and M. L. Adams, "XY-Geometry Analysis of an "S₂-like" Synthetic Acceleration Scheme," *Trans. Amer. Nucl. Soc.*, **55**, 354 (1987).
3. M. L. Adams and W. R. Martin, "A Method for Synthetically Accelerating Discontinuous Finite Element Transport Calculations," *Trans. Amer. Nucl. Soc.*, **54**, 159 (1987).
2. M. L. Adams and W. R. Martin, "A New Approach to Synthetic Acceleration of Transport Calculations," *Trans. Amer. Nucl. Soc.*, **53**, 282 (1986).
1. M. L. Adams and W. R. Martin, "Slab Geometry Spatial Discretization Schemes with Infinite-Order Convergence," *Trans. Amer. Nucl. Soc.*, **50**, 263 (1985).

Other Published Papers (* indicates student of M. L. Adams)

34. K.A. Miller, W.S. Charlton, and M.L. Adams, "Inverse Neutron Transport Analysis Approach to Identifying Source Locations," *Proc. of the 46th Annual Meeting of the Institute for Nuclear Materials Management*, Nashville, Tennessee, July 16-20 (2006). CD-ROM.
33. C. Boyle, P. I. E. de Oliveira, C. R. E. de Oliveira, M. L. Adams and J. M. Galan, "GERALD: A General Environment for Radiation Analysis and Design," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM.
32. T. E. Bailey*, M. L. Adams, B. Yang, and M. R. Zika, "A PieceWise Linear Finite Element Discretization of the Diffusion Equation for Arbitrary Polyhedral Grids," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM. *invited*
31. A. E. Maslowski* and M. L. Adams, "A New Approach to the Iterative Solution of Transport Problems," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM. *invited*
30. A. E. Maslowski* and M. L. Adams, "Behavior of Continuous Finite Element Discretizations of the Slab-Geometry Transport Equation," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM.
29. J. C. Stone* and M. L. Adams, "Adaptive Discrete-Ordinates Algorithms and Strategies," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM.

28. H. G. Stone* and M. L. Adams, "New Spatial Discretization Methods for Transport on Unstructured Grids," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM.
27. B. D. Lansrud* and M. L. Adams, "A Spatial Multigrid Iterative Method for Two-Dimensional Discrete-Ordinates Transport Problems," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM.
26. B. D. Lansrud* and M. L. Adams, "A Spatial Multigrid Iterative Method for One-Dimensional Discrete-Ordinates Transport Problems," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM. **invited**
25. J. H. Chang* and M. L. Adams, "Effectiveness of Various Transport Synthetic Acceleration Methods With and Without GMRES," *Proc. Conf. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications*, Avignon, France, September 11-15 (2005). CD-ROM. **invited**
24. M. L. Adams, "Editorial to: Ed Larsen's 60th Birthday," *Annals of Nuclear Energy*, **31**, No. 17, 1959-1960 (2004).
23. M. L. Adams, "Sustainable Energy from Nuclear Fission Power," *The Bridge*, National Academies Press (2002).
22. K. T. Clarno* and M. L. Adams, "Improved Boundary Conditions for Assembly-Level Transport Codes," *Proc. International Conference on the New Frontiers of Nuclear Technology : Reactor Physics, Safety and High-Performance Computing*, Seoul, Korea, Oct. 7-10 (2002).
21. M. L. Adams, N. M. Amato, P. Nelson, L. Rauchwerger, "Parallel Transport Computations by Spatial Decomposition," *Proceedings of the Ninth SIAM Conference on Parallel Processing for Scientific Computing*, San Antonio, Texas, USA, March 22-24, 1999. SIAM, CDROM (1999).
20. M. L. Adams and several co-authors, "University Contributions to Research in Nuclear Materials Safety," in *Nuclear Materials Safety Management*, Vol. II, L. J. Jardine and M. M. Moshkov (Eds.), Kluwer Academic Publishers, pp. 207-220 (1999).
19. D. Yu. Anistratov and M. L. Adams, "Analysis of a Partial MOX Core Design with Tritium Targets for LWR," *Proc. Int. Conf. on the Physics of Nuclear Science and Technology*, October 5-8, 1998, Long Island, NY, Vol. 1, pp. 271-278 (1998).
18. R. D. Ankney, A. A. Alsaed*, M. L. Adams, "Transition Cycle Fuel Management Using Weapons-Grade Mixed-Oxide Fuel," *Proc. Conf. on Advances in Nuclear Fuel Management II*, Myrtle Beach, SC, March 23-26 (1997).
17. M. R. Zika* and M. L. Adams, "Iterative Acceleration of Transport Calculations in Nuclear Reactor Analysis," *Proc. 1996 SIAM Annual Meeting*, Kansas City, MO, July 22-26 (1996). **invited**
16. M. L. Adams and G. Ramoné*, "Acceleration Methods for Assembly-Level Transport Iterations," *Proc. Tenth Conference on Reactor Physics and Thermalhydraulics*, Aguas de Lindoia, Brazil, Aug. 7-11 (1995). **invited**
15. S. K. Lee*, C. A. Beard, W. B. Wilson, L. L. Daemen, D. J. Liska, L. S. Waters, M. L. Adams, "Structural Activation Calculations due to Proton Beam Loss in the APT Accelerator Design," *International Conf. on Accelerator-Driven Transmutation Technologies and Applications*, Las Vegas, NV, July 25-29, 1994 (1994).
14. T. S. Palmer* and M. L. Adams, "Curvilinear Geometry Transport Discretizations in the 'Thick' Diffusion Limit," *Proc. International Conf. on Mathematical Methods and Supercomputing in Nuclear Applications*, April 19-23, 1993, Karlsruhe, Germany, Vol. I, p. 33, Kernforschungszentrum Karlsruhe (1993). **invited**
13. M. L. Adams, "New Nonlinear Methods for Linear Transport Calculations," *Proc. International Conf. on Mathematical Methods and Supercomputing in Nuclear Applications*, April 19-23, 1993, Karlsruhe, Germany, Vol. I, p. 6833, Kernforschungszentrum Karlsruhe (1993).
12. M. L. Adams and T. A. Wareing, "Diffusion-Synthetic Acceleration Given Anisotropic Scattering, General Quadratures, and Multiple Dimensions," *Proc. The Second Texas-Mexico Workshop on Numerical Particle Transport*, College Station, TX, Sep. 1992. **invited**
11. M. L. Adams, "New Nonlinear Flow Methods for Numerical Transport," *Proc. International Symposium on Numerical Transport Theory*, May 26-28, 1992, Moscow, Russia, p. 8 (1992). **invited**

10. T. A. Wareing, E. W. Larsen, and M. L. Adams, "Diffusion Accelerated Discontinuous Finite Element Schemes for the S_N Equations in Slab and X,Y Geometries," *Proc. International Conf. on Advances in Mathematics, Computation, and Reactor Physics*, Pittsburgh, PA, April 28-May 1 1991, Vol. 3, p. 11.1 2-1, American Nuclear Society (1991).
9. T. S. Palmer* and M. L. Adams, "Analysis of Spherical Geometry Finite Element Transport Solutions in the Thick Diffusion Limit," *Proc. International Conf. on Advances in Mathematics, Computation, and Reactor Physics*, Pittsburgh, PA, April 28-May 1 1991, Vol. 5, p. 21.1 4-1, American Nuclear Society (1991).
8. M. L. Adams, "A New Transport Discretization Scheme for Arbitrary Spatial Meshes in XY Geometry," *Proc. International Conf. on Advances in Mathematics, Computation, and Reactor Physics*, Pittsburgh, PA, April 28-May 1 1991, Vol. 3, p. 13.2 2-1, American Nuclear Society (1991).
7. M. L. Adams, "Discontinuous Finite-Element Transport Solutions in the Thick Diffusion Limit in Cartesian Geometry," *Proc. International Conf. on Advances in Mathematics, Computation, and Reactor Physics*, Pittsburgh, PA, April 28-May 1 1991, Vol. 5, p. 21.1 3-1, American Nuclear Society (1991).
6. M. L. Adams, "Even- and Odd-Parity Finite-Element Transport Solutions in the Thick Diffusion Limit," *Proc. International Conf. on Advances in Mathematics, Computation, and Reactor Physics*, Pittsburgh, PA, April 28-May 1 1991, Vol. 5, p. 21.1 2-1, American Nuclear Society (1991).
5. M. L. Adams, "Can Numerical Transport Methods Get the Right Answer to Problems That Contain Diffusive Regions?" *Proc. Nuclear Explosives Code Development Conf. – 1990* (1991).
4. M. L. Adams, "Deterministic Transport on an Arbitrarily-Connected Grid," *Proc. Conf. Advances in the Free-Lagrange Method*, June 3-7, 1990, Jackson Lake Lodge, WY, Lecture Notes in Physics **395**, p. 212, Springer-Verlag (1991).
3. M. L. Adams and E. W. Larsen, "Linear Diffusion Synthetic Acceleration of k -Eigenvalue Problems", *Proc. Conf. on Advances in Nuclear Engineering Computation and Radiation Shielding*, Vol. I, p. 12:1 (1989).
2. M. L. Adams and E. W. Larsen, "Efficient Calculation of Deterministic Alpha-Eigenvalue Problems", *Proc. Nuclear Explosives Code Development Conf. – 1988* (1988).
1. M. L. Adams and W. R. Martin, "Boundary-Projection Acceleration: A New Approach to Synthetic Acceleration of Transport Calculations", *Proc. Intl. Topical Mtg. on Advances in Reactor Physics, Mathematics and Computation*, Vol. 2, p. 579 (1987).

Published Technical Reports

2. G. Alonso-Vargas and M. L. Adams, "Studies of Flexible MOX/LEU Fuel Cycles," Oak Ridge National Laboratory report ORNL/SUB/99-19XSY062V-1 and Amarillo National Resource Center for Plutonium report ANRCP-1999-9 (1999).
1. A. A. Alsaed and M. L. Adams, "Disposition of Weapons-Grade Plutonium in Westinghouse Reactors," Amarillo National Resource Center for Plutonium report ANRCP-1998-1 (1998).

Other Invited Presentations

- "Thoughts on Verification of Transport Codes," *Computational Methods in Transport*, Tahoe City, CA, Sep. 9-14 (2006).
- "Case-Mode Analysis of a Discontinuous Finite Element Spatial Discretization," with A. E. Maslowski, *Computational Methods in Transport*, Tahoe City, CA, Sep. 9-14 (2006).
- "Implementing and Testing the Piecewise Linear Finite Element Method in Capsaicin," with T. E. Bailey, *Computational Methods in Transport*, Tahoe City, CA, Sep. 9-14 (2006).
- "Modern Methods for Nuclear Reactor Analysis," *Problems in Computational Astrophysics IV: Transport Phenomena*, UCLA, Pasadena, CA, May 15-20 (2005).
- "Neutron Transport in Nuclear Reactors," *Computational Methods in Transport*, Tahoe City, CA, Sep. 11-16 (2004).
- "A Piecewise Linear Finite Element Discretization of the Diffusion Equation," with T. E. Bailey, B. Yang, and M. R. Zika, *Computational Methods in Transport*, Tahoe City, CA, Sep. 11-16 (2004).
- "Case-Mode Analysis of Finite Element Spatial Discretizations," with A. E. Maslowski, *Computational Methods in Transport*, Tahoe City, CA, Sep. 11-16 (2004).

- “Preparing the Future of Reactor Physics: Needs in Science, People, and Infrastructure,” Panel Discussion, American Nuclear Society Winter Meeting, New Orleans, November (2003).
- “The Next Generation of Reactor-Analysis Methodology?” seminar, The University of Michigan Department of Nuclear Engineering and Radiological Sciences, October (2002).
- “Sustainable Energy from Nuclear Fission: Power for Centuries,” *Frontiers of Engineering*, National Academy of Engineering, Irvine, CA, September (2002).
- “Asymptotic Analysis of Deterministic Transport Solutions of Thick Diffusive Problems: Surprising Results that can Save Professional Lives,” *17th International Conference on Transport Theory*, London, England, July (2001).
- “Deterministic Transport Solutions of Thick Diffusive Problems, and Why Analysis is Vital!” Mathematics and Computations Keynote Talk, Milwaukee, WI, June (2001).
- “Discontinuous finite element solutions of thick diffusive problems,” seminar, North Carolina State University Department of Nuclear Engineering, November (2000).
- “Current research in computational transport theory in the United States,” seminar at the Federal University of Rio Grande do Sul, Porto Alegre, Brazil, August (1995).
- “Current problems in computational transport theory,” seminar at the Federal University of Rio Grande do Sul, Porto Alegre, Brazil, August (1995).
- “Current work in computational transport at Texas A&M University,” Third Texas-Mexico Workshop on Transport Theory, Mexico City, Mexico, May (1995).
- “Subcell Balance Methods for Radiative Transfer Calculations,” Conf. on Latest Developments and Fundamental Advances in Radiative Transfer, Los Angeles, April 1995.
- “Current research in computational transport theory in the United States,” seminar at Imperial College, London, England, March (1995).
- “Future of research in deterministic transport computations,” seminar at Imperial College, London, England, March (1995).
- “Deterministic Transport Calculations for Problems With Forward-Peaked Scattering,” Lanzl Institute of Medical Physics, Seattle, September 1995.
- “Efficient Massively Parallel Algorithms for Deterministic Transport Calculations,” mini-symposium, SIAM Conference, San Antonio, TX, May (1999).
- “Current problems in computational transport theory,” seminar at Imperial College, London, England, March (1995).
- “Finite element and corner balance methods for transport problems,” U.S. – U.S.S.R. Workshop on Transport Theory, College Station, TX, November (1991).
- “Designing computational methods that are accurate in certain limits,” seminar, Purdue University School of Nuclear Engineering, May (1991).
- “Diffusion acceleration of transport k-eigenvalue problems,” seminar, University of Michigan Department of Nuclear Engineering, March (1991).
- “Computational transport solutions in thick diffusive problems,” seminar, MIT Department of Nuclear Engineering, October (1990).
- “Even-parity finite element solutions in the thick diffusion limit,” International Conference on Finite Element Methods, London, England, May (1990).

Students supervised

Summary

12 PhD students graduated; 6 in progress (including 2 co-advised)
 12 M.S. students graduated; 4 in progress

Teaching

Courses Taught

Foundations of Engineering I (freshmen)

Nuclear Reactor Theory (juniors). Avg. student evaluation of overall performance: 4.92 out of 5

Nuclear Reactor Analysis (juniors). Avg. student evaluation of overall performance: 4.85 out of 5

Fortran Programming (juniors).

Nuclear Engineering Experiments (seniors). Avg. student evaluation, overall performance: 4.93 out of 5

Nuclear Reactor Analysis (first-year graduate). Avg. student evaluation, overall performance: 4.84 out of 5

Nuclear Reactor Analysis and Experimentation (first-year graduate) Avg. stud. eval., overall performance: 4.93 out of 5

Numerical Methods in Nuclear Engineering (PhD)

Computational Methods for Particle Transport (PhD).

Neutron Transport Theory (PhD)

Special Topics in Advanced Computational Methods (PhD)

Externally Funded Research Projects

Summary since 1992

Involved in 25 projects with total awards of \$77M. (Some will remain active into 2013.)

PI on 15 single-institution projects totaling \$23.7M

PI at lead institution on 1 multi-institution project totaling \$1.05M

PI at supporting institution on 3 multi-institution projects; total share for my institution \$3.07M

Co-PI on 5 single-institution projects totaling \$9.7M.

Co-PI at lead institution on 1 multi-institution project totaling \$7.0M

Co-PI at supporting institution on 1 multi-institution project; total share for my institution \$1.4M