VITA
2013

Name: Shirley Pomeranz

TU ID #: 0134340

Rank: Tenured Associate Professor of Mathematics

Department: Department of Mathematics

Date of First University of Tulsa Faculty Appointment: 8/26/87

Degrees earned (Include dates and names of institutions)

Ph.D., Mathematics, University of Massachusetts, May 1987
M.S., Mathematics, University of Connecticut, December 1978
M.S., Physics, New York University, June 1973
B.A., Physics, Barnard College of Columbia University, June 1971

Areas of Specialization

Boundary Element Method and Finite Element Method, Numerical Analysis, Engineering Applications, *Mathematica*

Professional Memberships

American Society for Engineering Education (ASEE)
Society for Industrial and Applied Mathematics (SIAM)
American Mathematical Society (AMS)
Mathematical Association of America (MAA)
Association for Women in Mathematics (AWM)

Honors/Awards and National/International Positions

Editorial Advisory Board Member, **International Journal of Engineering Education** (IJEE), Rossmore, Durrus, County Cork, Ireland, http://www.ijee.dit.ie/editors.html, September 1998–present

2007–2009 ASEE National Nominating Committee Member
2005–2007 ASEE National Board of Directors Member
2005–2007 ASEE National Professional Interest Council III, Chair

ASEE Mathematics Division Distinguished Educator and Service Award – 2005

NASA JOVE Program, NASA Langley Research Center, Hampton, Virginia, 1995–1996, finite element method error estimation research and student research, funded for $48,383

NASA JOVE Program, NASA Langley Research Center, Hampton, Virginia, 1994–1995, finite element method error estimation research and student research, funded for $46,720

NASA JOVE Program, NASA Langley Research Center, Hampton, Virginia, 1993–1994, finite element method error estimation research and student research, funded for $27,246 plus travel and relocation expenses

NASA–ASEE–Case–Ohio Aerospace Institute–Lewis Summer Faculty Fellowship Program, NASA Lewis Research Center, Cleveland, Ohio, May 18–August 7, 1992, finite element method research, funded for $10,000 plus travel and relocation expenses

NASA–ASEE–Case–Lewis Summer Faculty Fellowship Program, NASA Lewis Research Center, Cleveland, Ohio, June 3–August 12, 1991, iterative methods for boundary element linear

systems research, funded for $10,000 plus travel and relocation expenses

NASA–ASEE–Case–Lewis Summer Faculty Fellowship Program, NASA Lewis Research Center, Cleveland, Ohio, June 4–August 10, 1990, iterative methods for nonlinear finite element systems research, funded for $10,000 plus travel and relocation expenses

The University of Tulsa, Tau Beta Pi Teacher of the Month, November 1988

A. Publications in Refereed Journals

Pomeranz, S. and Hamill, W., Dual reciprocity versus Bessel function fundamental solution boundary element methods for the plane strain deformation of a thin plate on an elastic foundation, under review

Pomeranz, S., Richardson extrapolation applied to boundary element method results in a Dirichlet problem for the Laplace equation, International Journal of Computer Mathematics, vol. 88, issue 11, 2306–2330 (July 1, 2011)

Farrior, D., Hamill, W., Keiser, L., Kessler, M., LoPresti, P., McCoy, J., Pomeranz, S., Potter, W., and Tapp B., Interdisciplinary lively application projects in calculus courses, Journal of STEM Education (JSTEM), vol. 8, no. 3, 50–62, (June–Dec. 2007), http://www.auburn.edu/research/litee/jstem/

Pomeranz, S., Lewis, G., and Constanda, C., Iterative solution of a singular convection-diffusion perturbation problem, ZAMP, The Journal of Applied Mathematics & Physics, vol. 56, 890–907, (2005)

Pomeranz, S., Major issues and future directions of undergraduate mathematics: Instructional techniques in freshman and sophomore math courses, The Mathematical Association of America (MAA) Notes: Changing Core Mathematics, vol. 61, 155–159, (2002)

Pomeranz, S., Using a computer algebra system to teach the finite element method, International Journal of Engineering Education, vol. 16, no. 4, 362–368, (2000)

Pomeranz, S., Kirk, A., and Baker, W., An asymptotically exact finite element error estimator based on C^1 stress recovery, Computer Methods in Applied Mechanics and Engineering, vol. 154, nos. 3–4, 319–329, (1998)

Pomeranz, S., *A posteriori* finite element method error estimates for fourth order problems, Communications in Numerical Methods in Engineering, vol. 11, no. 3, 213–226, (1995)

Pomeranz, S. and Tull, T., Construction of some iterative methods for solving boundary element linear systems, Applied Numerical Mathematics, vol. 16, no. 3, 369–381, (1995)

Pomeranz, S., Using ANSYS to solve general boundary value problems in a numerical methods course, CoED Journal: Computers in Education Division of ASEE Journal, vol. 1, no. 4, 46–50, (Oct.–Dec. 1991)

Pomeranz, S., A solitary wave application of an iterative method for nonlinear elliptic eigenvalue problems, Computers & Mathematics with Applications, vol. 23, no. 1, 45–49, (1992)

Pomeranz, S., Computational methods for nonlinear elliptic eigenvalue problems, Computers & Mathematics with Applications, vol. 21, no. 8, 9–20, (1991)

Geacintov, N., Benson, R., and Pomeranz, S., Interaction of triplets of aromatic hydrocarbons with oxygen and nitric oxide, Chemical Physics Letters, vol. 17, 280–282, (1972)

B. Professional Presentations

Tradeoffs in using *Mathematica* templates in an introductory numerical methods course, American Society for Engineering Education Annual Meeting, Atlanta, GA, June 24, 2013

Pomeranz, S., Error estimation using Richardson extrapolation with boundary element method results in a Dirichlet problem for the Laplace equation, The Eleventh International Conference on Integral Methods in Science and Engineering (IMSE 2010), Brighton, England July 12, 2010

Richardson extrapolation applied to the numerical solution of boundary integral equations for a Laplace's equation Dirichlet problem, ASEE Midwest Section Annual Conference, Tulsa, OK, September 19, 2008

Hamill, W. and Pomeranz, S., The Dirichlet problem for the plane deformation of a thin plate on an elastic foundation, The Ninth International Conference on Integral Methods in Science and Engineering (IMSE 2006), Niagara Falls, Canada, July 25, 2006

Enhancing interdisciplinary interactions in the college of engineering and natural sciences, American Society for Engineering Education Annual Meeting, Chicago, IL, June 19, 2006

Enhancing interdisciplinary interactions in the college of engineering and natural sciences at The University of Tulsa, 68th Annual Meeting of the Mathematical Association of America Oklahoma–Arkansas Section, University of Arkansas–Fayetteville, Fayetteville, AR, March 31, 2006

Enhancing interdisciplinary interactions in the college of engineering and natural sciences: year 1, American Society for Engineering Education Annual Meeting, Portland, OR, June 15, 2005

Iterative solution of a singular convection diffusion perturbation problem, The Eighth International Conference on Integral Methods in Science and Engineering (IMSE 2004), University of Central Florida, Orlando, FL, August 3, 2004

Iterative solution of a singular convection-diffusion perturbation problem, 65th Annual Meeting of the Oklahoma–Arkansas Section of the Mathematical Association of America, The University of Tulsa, Tulsa, OK, March 29, 2003

Using Maple to learn *Mathematica*, American Society for Engineering Education Annual Meeting, Montreal, Canada, June 17, 2002

Iterative solution of a singular perturbation problem, Sixteenth Annual Conference on Applied Mathematics, University of Central Oklahoma, Edmond, OK, February 24, 2001

Using *Mathematica* in a graduate numerical methods course, American Society for Engineering Education Annual Meeting, Charlotte, NC, June 22, 1999

Some observations for teaching mathematics/physics/mechanics, American Society for Engineering Education Annual Meeting, Seattle, WA, June 29, 1998

An asymptotically exact finite element error estimator based on C^1 stress recovery, Texas Institute for Computational and Applied Mathematics (TICAM), University of Texas, Austin, TX, March 20, 1997

Using CAS in a graduate numerical methods course, American Society for Engineering Education Annual Meeting, Washington, DC, June 24, 1996

An asymptotically exact finite element error estimator for planar linear elasticity problems, Society of Industrial and Applied Mathematics Annual Meeting, Charlotte, NC, October 26, 1995

Using *Mathematica* to obtain graphics results from a FORTRAN finite element solution, NSF Workshop: Revitalizing the Engineering, Mathematics, and Science Curricula via Symbolic Algebra, Rose-Hulman Institute of Technology, Terre Haute, IN, July 14, 1995

An asymptotically exact finite element error estimator for planar linear elasticity problems, NASA JOVE Program Retreat, Monterey, CA, July 6, 1995

An asymptotically exact finite element error estimator for planar linear elasticity problems, Eleventh Annual Conference on Applied Mathematics, University of Central Oklahoma, Edmond, OK, February 10, 1995

An asymptotically exact finite element error estimator based on strain smoothing, Twenty-third Midwest Differential Equations Conference, The University of Oklahoma, Norman, OK, October 8, 1994

An asymptotically exact finite element error estimator based on strain smoothing, Society for Industrial and Applied Mathematics Annual Meeting, San Diego, CA, July 27, 1994

Construction of an asymptotically exact finite element method error estimator based on strain smoothing; Application to adaptive grid refinement, NASA JOVE Program Retreat, Cocoa Beach, FL, July 7, 1994

Finite element stress smoothing and *a posteriori* error estimation, Computational Mechanics Branch, NASA Langley Research Center, Hampton, VA, August 19, 1993

An *a posteriori* finite element error estimator for fourth order problems, Society for Industrial and Applied Mathematics Annual Meeting, Philadelphia, PA, July 15, 1993

Development of some *a posteriori* error estimators for the finite element method, 55th Annual Meeting of the Oklahoma–Arkansas Section of the Mathematical Association of America, Oral Roberts University, Tulsa, OK, March 26, 1993

Some features of the COSMOS/M finite element package, Propulsion Systems Branch, NASA Lewis Research Center, Cleveland, OH, August 6, 1992

Using ANSYS to solve general boundary value problems, Society for Industrial and Applied Mathematics 40th Anniversary Meeting, Los Angeles, CA, July 21, 1992

An asymptotic approach to obtaining the optimal finite element mesh grading function for a model 1-D boundary value problem, Society for Industrial and Applied Mathematics Texas–Oklahoma Section Meeting, The University of Tulsa, Tulsa, OK, April 3, 1992

Using ANSYS finite element software to solve heat transfer boundary value problems, 53rd Annual Meeting of the Oklahoma–Arkansas Section of the Mathematical Association of America, Cameron University, Lawton, OK, April 6, 1991

Evaluation of quasi-Newton iterative solution schemes for the M-HOST/NESSUS mixed finite element method, Structural Mechanics Branch, NASA Lewis Research Center, Cleveland, OH, August 9, 1990

An introduction to the finite element method, Rose-Hulman Institute of Technology, Terre Haute, IN, March 16, 1990

An application of an iterative method for nonlinear elliptic eigenvalue problems, Workshop in Applied Computing '89, Stillwater, OK, March 30–31, 1989

C. Books

Pomeranz, Shirley; Farrior, Donna; Doty, Dale; **Instructor's Technology Resources and Solutions Guide**; **Student's Technology Resources and Solutions Guide** (*Mathematica* solutions manuals and CD-ROMs (also web sites) to accompany the text, **Advanced Engineering Mathematics**, by Robert Lopez), Pearson/Addison Wesley Publishing Company, Boston, Massachusetts, 2002

D. Technical Reports

Pomeranz, S. and Conder, B., Construction of a recovery based finite element method error estimator, The University of Tulsa Technical Report # UTULSA-MCS-94-7, (1994)

E. Refereed Proceedings Publications

Pomeranz, Shirley, Tradeoffs in using *Mathematica* templates in an introductory numerical methods course, 2013 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 2013, Atlanta, Georgia

Pomeranz, Shirley, Error estimation using Richardson extrapolation with boundary element method results in a Dirichlet problem for the Laplace equation, The Eleventh International Conference on Integral Methods in Science and Engineering (IMSE 2010) Proceedings, Birkhäuser-Boston, 2011, Brighton, England, 326–338

Richardson extrapolation applied to the numerical solution of boundary integral equations for a Laplace's equation Dirichlet problem, 2008 ASEE Midwest Section Annual Conference Proceedings, 2008, Tulsa, Oklahoma

Chudinovich, Igor; Constanda, Christian; Doty, Dale; Hamill, William; Pomeranz, Shirley, The Dirichlet problem for the plane deformation of a thin plate on an elastic foundation, The Ninth International Conference on Integral Methods in Science and Engineering (IMSE 2006) Proceedings, Birkhäuser-Boston, 2007, Niagara Falls, Canada, 83–88

Pomeranz, Shirley; Farrior, Donna; McCoy, Jerome; Keiser, Leslie; LoPresti, Peter; Potter, William, Enhancing interdisciplinary interactions in the college of engineering and natural sciences, 2006 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 2006, Chicago, Illinois

Pomeranz, Shirley; Lewis, Gil; Constanda, Christian, A contact problem for a convection-diffusion equation, The Eighth International Conference on Integral Methods in Science and Engineering (IMSE 2004) Proceedings, Birkhäuser-Boston, 2005, Orlando, Florida, 235–244

Pomeranz, Shirley; Farrior, Donna; McCoy, Jerome; Keiser, Leslie; Kessler, Michael; LoPresti, Peter; Potter, William, Enhancing interdisciplinary interactions in the college of engineering and natural sciences: year 1, 2005 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 2005, Portland, Oregon

Farrior, Donna; Cairns, Thomas; Pomeranz, Shirley; Experiences from the Tulsa Mathematics Equity Academy, 2003 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 2003, Nashville, Tennessee

Using Maple to learn *Mathematica*, 2002 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 2002, Montreal, Canada

Using *Mathematica* in a graduate numerical methods course, 1999 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 1999, Charlotte, North Carolina

Some observations for teaching mathematics/physics/mechanics, 1998 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 1998, Seattle, Washington

Using CAS in a graduate numerical methods course, 1996 American Society for Engineering Education Annual Conference Proceedings (CD-ROM), 1996, Washington, DC

An application of an iterative method for nonlinear elliptic eigenvalue problems, Proceedings of the Workshop in Applied Computing '89 (in cooperation with IEEE and ACM), 1989, Stillwater, Oklahoma, 62–64

F. Other Publications

Pomeranz, S., Review of the book, **The Nature of Mathematical Modeling**, by Neil Gershenfeld, published in the MAA journal, The American Mathematical Monthly, vol. 107, no. 10, 763–766, (October 2000)

Pomeranz, S., Major issues and future directions of undergraduate mathematics: Instructional techniques in freshman and sophomore math courses, Proceedings of the Interdisciplinary Workshop on Core Mathematics: Considering Change in the First Two Years of Undergraduate Mathematics, United States Military Academy, West Point, New York, November 4–7, 1999, 209–214

Pomeranz, S. and Lam, C. Y., Guest Editorial (as guest co-editors), International Journal of Engineering Education, Special Issue on the Mathematics Education of Engineers, vol. 15, no. 6, 401, (1999)

Pomeranz, S. and Kirk, A., An asymptotically exact finite element error estimator for planar linear elasticity problems, Proceedings: Eleventh Annual Conference on Applied Mathematics, University of Central Oklahoma, Edmond, Oklahoma, Feb. 10–11, 1995, 174–188, (June 1995)

Pomeranz, S., Investigation of some features and capabilities of the COSMOS/M finite element package, NASA-ASEE Case-OAI-Lewis Summer Faculty Fellowship Program 1992 Final Report, Case Western Reserve University, Cleveland, Ohio, D-104–D-105, (Oct. 1992)

Pomeranz, S., Construction of some iterative methods for solving boundary element linear systems, NASA-ASEE Case-Lewis Summer Faculty Fellowship Program 1991 Final Report, Case Western Reserve University, Cleveland, Ohio, D-110–D-111, (Oct. 1991)

Pomeranz, S., Applications of quasi-Newton methods and iterative methods in the NESSUS finite element code, NASA-ASEE Case-Lewis Summer Faculty Fellowship Program 1990 Final Report, Case Western Reserve University, Cleveland, Ohio, D-122–D-123, (Oct. 1990)

G. Research and Education Proposals

1. Proposals Not Funded

Pomeranz, S., Association for Women in Mathematics (AWM), Travel Grants for Women Researchers, May 2010, $2,000 maximum funding requested from AWM, not funded

Pomeranz, S., Kessler, M., LoPresti, P., McCoy, J., and Potter, W., National Science Foundation, Course, Curriculum, and Laboratory Improvement, Adapt and Implement Proposal, Enhancing interdisciplinary interactions in the College of Engineering and Natural Sciences, June 1, 2003–May 31, 2006, $199,635 funding requested from NSF, not funded, to be revised and resubmitted (as recommended by NSF review)

Pomeranz, S., Faculty Development Summer Fellowship, The University of Tulsa, Domain decomposition method for a singular perturbation problem, June–July 2001, not funded

Pomeranz, S. and Farrior, D., Mathematical Association of America/Tensor Foundation, Proposal for a Fifth Sonia Kovalevsky High School Mathematics Day, April 24, 1999, $3800 funding requested from MAA, not funded

Pomeranz, S., The University of Tulsa Faculty Research Grant Program, Proposal for finite element error estimation, July 1997, $750 funding requested from TU, not funded

Pomeranz, S., and Farrior, D., Oklahoma Center for the Advancement of Science and Technology (OCAST), Proposal for finite element error estimation and adaptive refinement, Nov. 1993, $65,060 funding requested from OCAST, not funded

Pomeranz, S. and Farrior, D., National Science Foundation, Undergraduate Course and Curriculum Development, Proposal for an interdisciplinary finite element method course for undergraduate women students, June 1992, $83,493 funding requested from NSF, not funded

2. Proposals Funded

Pomeranz, S., The University of Tulsa, Faculty Development Summer Fellowship, Finite element method implementation of the boundary element method for a two-dimensional Laplace's

equation, June–July 2008, Funded for $6,750

Pomeranz, S., Kessler, M., LoPresti, P., McCoy, J., and Potter, W., National Science Foundation (NSF), Course, Curriculum, and Laboratory Improvement (CCLI), Adapt and Implement (A&I) Proposal, Enhancing interdisciplinary interactions in the College of Engineering and Natural Sciences, July 15, 2004–June 30, 2006, Funded with award # DUE-0410653 for $99,242

Pomeranz, S., McCoy, J., Doty, D., and Hamill, W., United States Military Academy and The Consortium for Mathematics and Its Applications (COMAP), Project INTERMATH Adapt and Implement Mini-Planning Grant, Interdisciplinary projects involving mathematics and engineering departments, January 2001–May 2002, Funded for $5,000

Pomeranz, S., The University of Tulsa, Faculty Development Summer Fellowship, Finite element solution of a singular perturbation problem - Part II, June–July 1999, Funded for $4,989

Pomeranz, S., Farrior, D., and Wilson, S., Association for Women in Mathematics/National Security Agency, Proposal for a Fifth Sonia Kovalevsky High School Mathematics Day, October 30, 1998, Funded for $3,400

Pomeranz, S., The University of Tulsa, Faculty Development Summer Fellowship, Finite element solution of a singular perturbation problem, June–July 1998, Funded for $4,878

Pomeranz, S. and Farrior, D., Oklahoma State Regents for Higher Education, Proposal for a Third Tulsa Mathematics Equity Academy (3rd TMEA), July 5–17, 1998 (and fall 1998, follow-up event), Funded for $29,923

Pomeranz, S., Farrior D., and Wilson S., Association for Women in Mathematics, Proposal for a Fourth Sonia Kovalevsky High School Mathematics Day, September 19, 1997, Funded for $2,400

Pomeranz, S., Farrior, D., and Trimble, D., Oklahoma State Regents for Higher Education, Proposal for a Second Tulsa Mathematics Equity Academy (2nd TMEA), June 2–27, 1997 (and September 19, 1997, follow-up event), Funded for $39,936

Pomeranz, S., Farrior, D., Wilson, S., and McCroskey, A., Mathematical Association of America/Tensor Foundation, Proposal for a Third Sonia Kovalevsky High School Mathematics Day, February 18, 1997, Funded for $3,900

Pomeranz, S., Farrior, D., and Thompson, C., Oklahoma State Regents for Higher Education, Proposal for a First Tulsa Mathematics Equity Academy (1st TMEA), July 7–19, 1996 (and September 21, 1996, follow-up event), Funded for $18,000

Farrior, D. and Pomeranz, S., Additional TMEA funding from Warren Petroleum Company, July 7–19, 1996, Received $500

Pomeranz, S., Farrior, D., and Thompson, C., Oklahoma State Regents for Higher Education, Proposal for a Tulsa Mathematics Equity Teacher Institute, June 1996, Funded for $39,950 to TCC (lead institution), Subcontracted by TCC to TU for $1,650

Pomeranz, S., Farrior, D., Wilson, S., VanNostrand, D., Thompson, C., Hammontree, J., Fisher, A., Jackson, M., and Thompson, M., Association for Women in Mathematics, Proposal for a First Sonia Kovalevsky High School Mathematics Day, April 21, 1995, Funded for $4,060

Pomeranz, S., National Science Foundation, Research Opportunities for Women, Research Planning Grant, Development and applications of iterative methods for solving nonlinear elliptic eigenvalue problems, August 1, 1990–July 31, 1992, Funded for $15,000

Pomeranz, S., The University of Tulsa, Faculty Development Summer Fellowship, Computational methods for nonlinear elliptic eigenvalue problems, June–July 1988, Funded for $3,145

H. Masters and Doctoral Committees at The University of Tulsa

Ph.D. committee member for Sreelatha Kilambi, Mechanical Engineering Department, 2013

Ph.D. committee member for Jesse Jason French, Mechanical Engineering Department, 2010

Supervised group report for Anne Fischer, Applied Mathematics, Topic: Solving a Dirichlet problem for Laplace's equation using separation of variables, finite-differences, finite-elements, and the boundary element method, Fall 2007, Provided funding for $500, 2008 ASEE Midwest Section Annual Conference presentation/publication resulted

M.S. committee member for Mei Han, Petroleum Engineering Department, 2008

M.S. committee member for Melanie Smith, Discipline of Computer Science, 2006

M.S. committee member for Gabriel Larin, Mechanical Engineering Department, 2006

M.S. committee member for Deepthi Akilla, Mechanical Engineering Department, 2004

M.S. committee member for Jeffrey Wilson, Mechanical Engineering Department, 2000

M.S. committee member for Michael Rutter, Applied Mathematics, 1996

M.S. advisor for Adrian Kirk, Applied Mathematics, Asymptotically exact finite element error estimators for planar linear elasticity problems, Graduate Research Assistantship funding from the NASA JOVE Program, 1995

M.S. committee member for Yi Xiong, Mechanical Engineering Department, 1994

M.S. committee member for Shunhua Thomas Chang, Electrical Engineering Department, 1992

M.S. committee member for Shih-Jack Chang, Electrical Engineering Department, 1992

Ph.D. committee member for Sukyeon Hwang, Geosciences Department

M.S. advisor for Mehmet Turegun, Applied Mathematics, The C^0- finite element approximate solution of the biharmonic Dirichlet problem, 1991

Supervised M.S. report for Jami Boettcher, Applied Mathematics, A survey of the mathematics of weather prediction, 1991

Supervised M.S. report for Shirley Trigalet, Applied Mathematics, Numerical methods for the solution of initial value ordinary differential equations, 1990

I. Continuing Education/Short Course/Workshop Activities Attended

NSF-Project INTERMATH Workshop/Retreat: Reforming the Core Mathematics Program, United States Military Academy, West Point, New York, October 12–15, 2000

NSF-MAA Interdisciplinary Workshop on Calculus (Math, Engineering, Physics), United States Military Academy, West Point, New York, November 4–7, 1999

WEPAN Midwest Regional Training Seminars—Recruitment and Retention of Women in Engineering and the Supporting Sciences, Purdue University, West Lafayette, Indiana, November 2–4, 1997

Strategies for Educational Equity, Whirlpool/AAUW/Tulsa Public Schools, Tulsa, Oklahoma, September 16, 1997

Sabbatical at the Texas Institute for Computational and Applied Mathematics (TICAM), University of Texas, Austin, Texas, Spring semester 1997

Effective Teaching: A Workshop, ASEE Midwest Section Conference, Tulsa, Oklahoma, April 10–11, 1996

NSF Workshop: Revitalizing the Engineering, Mathematics, and Science Curricula via Symbolic Algebra, Rose-Hulman Institute of Technology, Terre Haute, Indiana, July 10–15, 1995

Faculty Workshop: Uses of the Internet for Mathematicians, Southwestern Oklahoma State University, Weatherford, Oklahoma, March 31, 1995

Grid Generation, Adaptive Refinement, and Redistribution Short Course, College of Engineering, University of Texas, Austin, Texas, May 3–5, 1993

ANSYS Finite Element Software Workshop, DRD Corporation, Tulsa, Oklahoma, March 17–19, 1993

ANSYS Finite Element Software Workshop, DRD Corporation, Tulsa, Oklahoma, September 23–25, 1992

UNIX Workshop, NASA Lewis Research Center, Cleveland, Ohio, July 23–27, 1990

ANSYS Introductory Seminar, DRD Corporation, Tulsa, Oklahoma, September 10–12, 1990

J. Technical Consulting

Taught a *Mathematica* Workshop for high school teachers, The University of Tulsa, Tulsa, Oklahoma, December 7, 1996

Taught an 11 week course, "Introduction to the Finite Element Method", to engineers at the Amoco Production Company Research Center, Tulsa, Oklahoma, Fall 1991

K. Professional and Civic Activities

1. Professional Activities

Calculus text book reviewer for W. H. Freeman and Company, Fall 2011

Mathematica text book reviewer for Elsevier Academic Press, Spring 2007

Editorial advisory board member, **International Journal of Engineering Education** (IJEE), Rossmore, Durrus, County Cork, Ireland, ijee@eircom.net, http://www.ijee.dit.ie/editors.html, September 1998–present

Guest co-editor with Chung Yau Lam, Nanyang Technological University, Singapore, **International Journal of Engineering Education**, Special Issue on the Mathematics Education of Engineers, vol. 15, no. 6, 401, (1999)

Review of engineering mathematics articles for IJEE, JSTEM, and ASEE

Attended the Texas Finite Element Rodeo:
Austin,Texas, February 28, 1997

Attended the Symposium on Advances in Computational Mechanics:
Austin, Texas, January 13–14, 1997

Attended the Finite Element circuses:
College Park, Maryland, April 16–17, 1993
Newark, Delaware, November 6–7, 1992

Participated in American Society for Engineering Education Board of Director meetings:

ASEE Board of Directors meeting, Scottsdale, Arizona, February 3–4, 2007

ASEE 2007 Conference program planning committee meeting, Washington, D.C., October 27, 2006

ASEE Board of Directors meetings, Chicago, Illinois, June 18, 2006

ASEE Board of Directors meeting, San Antonio, Texas, January 22, 2006

ASEE 2006 Conference program planning committee meeting, Washington, D.C., October 21, 2005

ASEE Board of Directors meetings, Portland, Oregon, June 14 and June 16, 2005

Attended annual conferences of the American Society for Engineering Education (ASEE):

2013 ASEE Mathematics Division Secretary/Treasurer-Elect

Atlanta, Georgia, June 23–26, 2013; chaired Mathematics Division session and reviewed papers

2002–2012 ASEE Mathematics Division Director

San Antonio, Texas, June 10–13, 2012; chaired Mathematics Division session and reviewed papers

Vancouver, BC, Canada, June 29, 2011; attended Mathematics Division business meeting and reviewed papers

2009–2010 ASEE Mathematics Division Chair

Louisville, Kentucky, June 20–23, 2010; chaired Mathematics Division session and reviewed papers

Austin, Texas, June 14–17, 2009; reviewed papers

2008–2009 ASEE Mathematics Division Program Chair

Pittsburgh, Pennsylvania, June 22–25, 2008; reviewed papers

Honolulu, Hawaii, June 24–27, 2007

2005–2007 ASEE National Board of Directors Member

2005–2007 ASEE National Professional Interest Council III Chair

Chicago, Illinois, June 18–21, 2006; chaired Professional Interest Council III business meeting; reviewed presentations and papers

Portland, Oregon, June 12–15, 2005; reviewed papers

2004–2005 ASEE Mathematics Division Program Chair

Salt Lake City, Utah, June 20–23, 2004; chaired Mathematics Division session and reviewed papers

Nashville, Tennessee, June 22–25, 2003; chaired Mathematics Division session and reviewed papers

Montreal, Canada, June 16–19, 2002; chaired Mathematics Division session and reviewed papers

2001–2002 ASEE Mathematics Division Chair

Albuquerque, New Mexico, June 24–27, 2001; chaired Mathematics Division session and reviewed papers

Spring 2001 ASEE Mathematics Division Representative to MAA

2000–2001 ASEE Mathematics Division Program Chair

St. Louis, Missouri, June 18–21, 2000; chaired Mathematics Division session

1999–2000 ASEE General Electric Senior Research Award Committee Member

Charlotte, North Carolina, June 20–23, 1999; chaired Mathematics Division session

1998–1999 ASEE Mathematics Division Chair

Seattle, Washington, June 28–July 1, 1998

1997–1998 ASEE Mathematics Division Program Chair

Milwaukee, Wisconsin, June 15–18, 1997; chaired Mathematics Division session

Washington, DC, June 23–26, 1996

Anaheim, California, June 25–28, 1995

Edmonton, Alberta, Canada, June 26–29, 1994

Toledo, Ohio, June 21–25, 1992

Lincoln, Nebraska, June 25–29, 1989

Portland, Oregon, June 19–22, 1988

Attended annual meetings of the ASEE Midwest Section:

Tulsa, Oklahoma, September 17–19, 2008

Fayetteville, Arkansas, September 16, 2005

Attended annual meetings of the Society for Industrial and Applied Mathematics (SIAM):
Kansas City, Missouri, July 22–26, 1996
Charlotte, North Carolina, October 26, 1995; chaired Elasticity session
San Diego, California, July 25–29, 1994; chaired Numerical Analysis session
Philadelphia, Pennsylvania, July 14–15, 1993
Los Angeles, California, July 20–24, 1992
Washington, DC, July 8–12, 1991
Chicago, Illinois, July 16–20, 1990
San Diego, California, July 17–21, 1989
Minneapolis, Minnesota, July 11–15, 1988

Attended annual meetings of the Oklahoma–Arkansas section of the Mathematical Association of America (MAA):
Fayetteville, Arkansas, March 31, 2006
Tulsa, Oklahoma, March 28, 2003
Weatherford, Oklahoma, March 31–April 1, 1995
Tulsa, Oklahoma, March 26, 1993
Lawton, Oklahoma, April 5–6, 1991

Attended the 1999 Joint Mathematics Meetings (MAA/AMS), San Antonio, Texas, January 13–16, 1999, as a representative of the ASEE (funded by Exxon Education Foundation)

Attended the Sixteenth Annual Conference on Applied Mathematics, Edmond, Oklahoma, February 24, 2001
Attended the Eleventh Annual Conference on Applied Mathematics, Edmond, Oklahoma, February 10–11, 1995

Attended the Eleventh International Conference on Integral Methods in Science and Engineering, Brighton, England, July 12–14, 2010
Attended the Ninth International Conference on Integral Methods in Science and Engineering, Niagara Falls, Canada, July 23–26, 2006
Attended the Eighth International Conference on Integral Methods in Science and Engineering, Orlando, Florida, August 2, 2004

Attended the Twenty-third Midwest Differential Equations Conference, Norman, Oklahoma, October 7–8, 1994

Attended Association for Women in Mathematics (AWM) workshops:
San Diego, California, July 24, 1994
Washington, DC, July 7, 1991

Attended Women in Engineering Program Advocates Network (WEPAN) Conference, Washington, D.C., May 31–June 2, 1992

Attended Career Enhancement for Women in Science, Mathematics, and Medicine Workshop, sponsored by EPScoR (Experimental Program to Stimulate Competitive Research), Oklahoma City, Oklahoma, November 14, 1991

Attended NASA JOVE Program retreats:
Monterey, California, July 5–8, 1995
Cocoa Beach, Florida, July 6–9, 1994
Galveston, Texas, July 7–10, 1993

2. Civic Activities

Nominated Dr. Elton Graves (Rose-Hulman Institute of Technology) for the 2008 ASEE Mathematics Division Distinguished Educator and Service Award, Dr. Graves won the award, presented by the ASEE Mathematics Division, June 25, 2008

Eleventh Annual Sonia Kovalevsky High School Mathematics Day, conducted workshop, "Maurer Roses with *Mathematica*", The University of Tulsa, February 8, 2005

Tenth Annual Sonia Kovalevsky High School Mathematics Day, conducted workshop, "Maurer Roses with *Mathematica*", The University of Tulsa, February 25, 2004

Nominated Professor Phyllis Boutilier (Michigan Technological University) for the 2003 ASEE Mathematics Division Distinguished Educator and Service Award, Professor Boutilier won the award, presented by the ASEE Mathematics Division, June 25, 2003

Nominated Dr. Donna Farrior (The University of Tulsa) for the 2002 Pinnacle Award in Education, Dr. Farrior won the award, presented by the Tulsa Mayor's Commission on the Status of Women and the Tulsa Women's Foundation, March 5, 2002

Sixth Annual Sonia Kovalevsky High School Mathematics Day, helped host problem solving activities, The University of Tulsa, April 5, 2000

Fifth Annual Sonia Kovalevsky High School Mathematics Day, program director and organizer, The University of Tulsa, October 9, 1998

Oklahoma Regional Science Bowl, rules judge for high school science competition, The University of Tulsa, January 31, 1998

Fourth Sonia Kovalevsky High School Mathematics Day, program director and organizer, The University of Tulsa, September 19, 1997

Tulsa Mathematics Equity Academy (2nd TMEA), program director and teacher in program, June 2–27, 1997, and follow-up event, The University of Tulsa, September 19, 1997

Expanding Your Horizons (EYH), program volunteer, University of Texas, Austin, March 22, 1997

Tulsa Mathematics Equity Academy (1st TMEA), program director and participated in program, July 7–19, 1996, and follow-up event, The University of Tulsa, September 21, 1996

Second Sonia Kovalevsky High School Mathematics Day, conducted *Mathematica* workshops, The University of Tulsa, March 8, 1996

Brownie Girl Scout Day, conducted mathematics workshops, The University of Tulsa, February 17, 1996

First Sonia Kovalevsky High School Mathematics Day, program director and conducted *Mathematica* workshops, The University of Tulsa, April 21, 1995

International Council of Tulsa, participant in USIA program, Women's Issues, The University of Tulsa, May 11, 1994

Young Scholars' Program, conducted workshop: Using Computer Software to Solve a Heat Conduction Problem, The University of Tulsa, February 26, 1994

Society of Women Engineers, Leading Girls to Science, Mathematics, and Technology, conducted mathematics workshops, The University of Tulsa, February 12, 1994

Tulsa Regional Science and Engineering Fairs, judge for middle and high school mathematics exhibits, Tulsa, OK, March 12, 1991 and March 16, 1992

L. The University of Tulsa Service Activities

1. The University of Tulsa, Department of Mathematical and Computer Sciences Colloquia Presentations

Investigation of the COSMOS/M finite element package, September 10, 1992

Quasi-Newton methods and iteration with applications to the M-HOST finite element package, September 6, 1990

An application of the finite element method, October 26, 1989

On convergence of block-centered finite-differences for elliptic problems, Summer Research Seminar on Scientific Computing, May 10, 1988

2. Other Activities

Mathematics Graduate Student Advisor, 2010–present

Department of Mathematics Review Committee member, 2011–2012

Department of Mathematical and Computer Sciences Review Committee alternate member, 2010–2011

Department of Mathematical and Computer Sciences Search Committee member, Fall 2010

Department of Mathematical and Computer Sciences Review Committee member, 2008–2010

College of Engineering and Natural Sciences Review Board for Student Academic Misconduct member, 2007–2010

University Faculty Senate member, 2008–2009

Department of Mathematical and Computer Sciences Review Committee alternate member, 2006–2008

Department of Mathematical and Computer Sciences Search Committee member, Spring 2007

Women's Studies Program Advisory Board member, 2003–2004

College of Engineering and Natural Sciences Committee on Rights and Responsibilities alternate, April 23, 2002–May 31, 2003

University Committee on Faculty Grievances member, April 20, 1998–May 31, 2001

English Department Teaching Assistant Evaluation Committee member, April 17, 1998

Graduate Program in Taxation, Review Committee member, 1998

The University of Tulsa, Writing Program, faculty panel member, August 22, 1996, August 21, 1997, and August 20, 1998

The University of Tulsa Writing Program Advisory Board member, 1996–1999

Graduate Council member, Spring–Summer 1996

Committee for Planning of the Graduate Council member, 1993–1994

Senior Honors Project advisor for Laura Haworth, 1992–1993

The University of Tulsa Project Colleague volunteer, 1991–1992

Mathematical & Computer Sciences Departmental Review Committee alternate, 1991–1992

Mathematics Department/McFarlin Library liaison, 1990–present

Women's Studies Program Advisory Board member, 1989–1990

The University of Tulsa Bicycle Club Faculty advisor, 1989–1990

Faculty Affairs Council Committee member, 1989–1990

University Faculty Senate member, 1988–1990

3. Additional Courses Taught

Math 7913SP Master's Report - Boundary Element Method (including comparisons of separation of variables, finite differences, the finite element method, and the boundary element method for a Dirichlet problem for Laplace's equation); Results include a presentation at a Tulsa ASEE section meeting - Fall 2007 - Anne Fischer

Math 7913SP Master's Report - Boundary Element Method - Fall 2009 - Scott Grubb

Math 7993SP Independent Study - Boundary Element Method - Spring 2010 - Jason Vermette

Math 7993SP Independent Study and Math 4993SP Independent Study - Boundary Element Method - Fall 2010 - Jason Gates and Graham Baluh