Curriculum Vitae – Jerry Dwyer

1. CONTACT INFORMATION

Jerry Dwyer
College of Education
Texas Tech University
Lubbock, TX 79409
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806-834-7399

2. EDUCATION

PhD	National University of Ireland	Applied Mathematics	1986
MSc	National University of Ireland	Computer Science	1982
BA	National University of Ireland	Mathematical Science	1980

3. ACADEMIC and ADMINISTRATIVE POSITIONS

Texas Tech University Professor of Education	2016 –
Texas Tech University, Director Center for the Integration of STEM Education & Research	2016 –
George Washington University (Director STEM Academy)	2015-2016
George Washington University (Professor of Mathematics)	2015-2016
Texas Tech University (Director STEM Center for Outreach, Research & Education)	2012-2015
Texas Tech University (Professor of Mathematics)	2013-2015
Texas Tech University (Coordinator of STEM Outreach)	2009-2013
Texas Tech University (Associate Professor of Mathematics)	2009-2013
Texas Tech University (Assistant Professor of Mathematics)	2003-2009
University of Tennessee, Knoxville (Assistant Professor of Mathematics)	2000-2003
University of Colorado, Boulder (Research Associate, Instructor)	1991-2000
Eldoret Polytechnic, Kenya, Africa (Visiting Instructor)	June 1997
University of New Hampshire (Visiting Associate Professor)	1996-1997
Colorado School of Mines (Instructor)	Fall 1993
Montana State University (Research Associate)	1992-1993
Massachusetts Institute of Technology (Visiting Scientist)	1990-1991
University of Manchester, England (Research Associate)	1989-1990
Regional College Cork, Ireland (Lecturer)	1984-1989
University College Cork, Ireland (Lecturer)	1981-1984

4. ADMINISTRATIVE and LEADERSHIP HIGHLIGHTS

(Further details in sections 7, 8 and 9**)**

4.1 Grants writing and management

- Created and managed grant writing teams of 4 to 12 researchers and educators
- Developed grant writing collaborations with K-12 schools and community colleges
- Obtained approximately $17.0 million in funding as PI or co-PI since 2007
- Implemented and managed several funded projects involving faculty, staff and student personnel
- Supervised hiring and managed several budgets in the $1.0 million range
- Mentored about twenty faculty campus-wide on grant proposal development

4.2 Director STEM Center for Outreach, Research & Education and Coordinator of STEM Outreach

- Coordinator of STEM Outreach Texas Tech University 2009 – 2013
- Created STEM Education and Outreach network
- Liaison with all STEM colleges and network faculty
- Organized campus wide STEM faculty network meetings
- Organized co-PI meetings for NSF I^3 program
- Organized NSF external advisory board meetings
- Director STEM Center for Outreach, Research & Education 2012 – 2015
- Directed development of STEM-CORE strategic plan
- Reported to six supervising college Deans
- Directed development of STEM-CORE affiliate faculty program
- Created and managed grant writing teams of Texas Tech, community college, and K-12 faculty

4.3 Program development

- Co-Director of high school summer math academy Texas Tech University 2004-2015
- Director of summer TexPREP program Texas Tech University 2004-2015
- Facilitator of pre-semester algebra camp for freshmen Engineering students 2006-2009
- Coordinator of service learning activities in several Texas Tech University, University of Tennessee and University of Colorado mathematics classes
- Organizer of ten K-8 girls' math clubs, Lubbock, TX, 2003-2010
- Organizer of three middle school girls' math clubs, Knoxville, TN, 2001-2003
- Organized University of Colorado (CU) math department outreach to Native American community in Ignacio Colorado school district.
- Leader CU math department tutoring projects in Boulder Valley elementary schools
- Organized CU math department participation in CU-In-Residence program in Ouray Colorado.

4.4 Budget and personnel supervision

- Hired and supervised Assistant Coordinators of STEM Outreach
- Supervised budgets and payment for I^3 advisory board meetings
- Supervised budgets and payment for I^3 faculty and staff
- Supervised work of Assistant STEM coordinators
- Managed budget and payment of Noyce scholarships

4.5 Other Leadership roles

- Developer Math Education option for Math PhD program 2006-2009
- Arts & Sciences STEM Council member (2011-2015), developed STEM outreach plans, promotion & tenure reward structures; STEM Center proposal
- Chaired College subgroup drafting tenure and promotion criteria for outreach scholarship
- Recruited 50 candidates for Noyce scholars program
- Organized weekly Math Education and Noyce seminar 2005-2015

5. RESEARCH

5.1 Book

Dwyer, J., Sherrod, S., Hitchcox, K. (editors). *Science and Mathematics Integrated Activities for Middle School* (171 pages). Lambert Academic Publishing (2011).

5.2 Journal Articles

1. R. McCluskey, S. Sherrod, and J. Dwyer. (2016) Teacher Immediacy and Learning Mathematics: Effects on Students with Divergent Mathematical Aptitudes and in Algebra and Calculus Classes. *Investigations in Mathematics Learning,* to appear

2. E. Williams, S. Sherrod, and J. Dwyer. (2014) Instructor Immediacy and Motivation for Mathematics Learning, *MathAMATYC Educator*, 5(3), May 2014

3. Jerry Dwyer and Lawrence Schovanec, Revisiting an Outreach Mathematician, *Notices of the AMS*, 60 (7), pp 924-926, Aug 2013

4. T. Stout, J. Dwyer, R. Byerly, and J. Wilhelm. (2011) Assessing the Learning of Proofs in High School. *International Journal for Mathematics Teaching and Learning*. Available online at http://www.cimt.plymouth.ac.uk/journal/dwyer3.pdf

5. J. Dwyer, K. Moorhouse, and M. Colwell. (2009) Middle School Students' Perspectives on Learning Statistics. *International Journal for Mathematics Teaching and Learning*. Available online at http://www.cimt.plymouth.ac.uk/journal/dwyer.pdf

6. J. Dwyer, O. Arizpe, and T Stevens. (2009) Mathematical Self-Efficacy of Middle School Students Solving the Rubik Cube. *International Journal for Mathematics Teaching and Learning.* Available online at http://www.cimt.plymouth.ac.uk/journal/dwyer2.pdf

7. J Dwyer, R. Barnard, D. Cook, and J. Corte. Iteration of Complex Functions and Newton's Method. *Australian Senior Mathematics Journal.* 23(1), 2009. 9-16.

8. Sherrod, S., Dwyer, J., & Narayan, R. Developing science and math integrated activities for middle school students. *International Journal of Mathematical Education in Science and Technology, 40*(2), 2009. 247-257.

9. J. Dwyer, M. Keating and S. Sherrod. The Koch Snowflake. *Mathematics Teaching 207,* March 2008. 33-34.

10. T. Stevens, Y. To, G. Harris, and J. Dwyer. The LOGO Project: Designing an Effective Continuing Education Program for Teachers. *Journal of Computers in Mathematics and Science Teaching, 27(2)*, 2008**.**

11. B. J. Duke; J. F. Dwyer; J. Wilhelm; B. Moskal. Complex variables in junior high school: the role and potential impact of an outreach mathematician, *Teaching Mathematics and its Applications*, 27(1), 2008.

12. S. A. Furlich and J. Dwyer, Student Motivation and Instructor Immediacy in Community College Mathematics Classes. *The Mathematics Educator (Singapore)* 10(2), 2007. 55-70.

13. J. Dwyer, B. Duke, B Moskal, and Jennifer Wilhelm. Complex Variables in Secondary School. *Mathematics Teaching 201,* March 2007. 32-34.

14. J. Dwyer, B Moskal, and L. Chenault. College Faculty in the High School Mathematics Classroom. *The International Journal of Interdisciplinary Social Sciences,* 2(1**)** 2007.

15. J. Dwyer. Confidence Gained from Middle School Girls Mathematics Clubs. AWM Newsletter, 36(1), 2006. 12-13.

16. Dwyer, J. F., Rachel Cline, and Tracie Mclemore Salinas, Lessons Learned in Creating Middle School Girls Mathematics Clubs – MAA FOCUS, Jan 2006. 26(1), 20-21

17. Dwyer, J.F., K-12 Math Tutoring as a Service-Learning Experience for Elementary Education Students, in *Mathematics in Service to the Community*, MAA Notes, 2005

18. Heid, K., Brancamp, D., Dwyer, J., Hoff, D., and Rubillo, J., Grade 11: Process and Standards - Algebra II, Precalculus, in *Standards & Curriculum, A view from the Nation,* A Joint Report by NCTM and ASSM, Park City, Utah, July 2004

19. Conway, J.B., R. Davis, and J.F. Dwyer, Engagement in Tennessee Mathematics, *Journal of Higher Education Outreach and Engagement,* 8 (2), pp 151-162, 2003 (not listed in order of contributions)

20. Dwyer, J.F., Reflections of an Outreach Mathematician, *Notices of the AMS*, 48 (10), pp 1173-1175, Nov 2001

21. Kraft, R.J. and J.F. Dwyer, Service and Outreach: A Multicultural and International Dimension, *Journal of Higher Education Outreach and Engagement,* 6(1), pp 41-47, 2000

22. Dyurgerov, M. and J.F. Dwyer, The Steepening of Glacier Mass Balance Gradients with Northern Hemisphere Warming. *Zeitschrift fur Gletscherkunde und Glazialgeologie. Universitatsverlag Wagner. Innsbruck*, v. 36, pp 107-117, 2000

23. Hafiani, F. and J.F. Dwyer, Edge Function Analysis of Anisotropic Materials with Holes and Cracks, *Computers and Structures*, 72(6), pp 779-791, 1999

24. Pfeffer, W.T.; M. Dyurgerov; M. Kaplan; J. Dwyer; C. Sassolas; A.Jennings; B. Raup; W. Manley. Numerical Modeling of Late Glacial Laurentide Advance of Ice Across Hudson Strait at Younger Dryas Time: Insights into Terrestrial and marine Geology, Mass Balance, and Calving Flux, *Paleoceanography,* 12(1), pp 97-110, 1997

25. Dwyer, J.F., B. Amadei, C.T. Lin and W.T. Pfeffer, Edge Function Analysis of Glacier Mechanics Problems, *International Journal of Solids and Structures,* 34(8), pp 991-1005, 1997.

26. Dwyer, J.F., Edge Function Analysis of Crack Interaction in Anisotropic Materials, *Engineering Fracture Mechanics*, 56(2), pp 233-248, 1997

27. Keat, W.D., E. Erguven and J.F. Dwyer, Modeling of 3-D Mixed-mode Fractures Near Planar Bi-material Interfaces using Surface Integrals, *International Journal of Numerical Methods in Engineering*, 39(21), pp. 3679-3703, 1996

28. Lin, C.T., B. Amadei, J. Jung and J.F. Dwyer, Extensions of the Discontinuous Deformation Analysis for Jointed Rock Masses, *International Journal of Rock Mechanics and Mining Sciences and Geomechanics Abstracts*, 33(7), pp. 671-694, 1996

29. Dwyer, J.F., P. Stanley and J. Dulieu, Predicting the Thermoelastic Response and Relevant Material Properties of SMC, *Journal of Materials Processing Technology*, Vol. 56, 1-4, pp. 655-666, 1996

30. Dwyer, J.F. and B. Amadei, Edge Functions and Singular Problems in Rock Mechanics, *International Journal of Rock Mechanics and Mining Sciences and Geomechanics Abstracts,* 32(2), pp. 121-133, 1995

31. Dwyer, J.F. and B. Amadei, Application of the Edge Function Method to Rock Mechanics, *Rock Mechanics and Rock Engineering*, Vol. 28, No. 4, pp. 185-209, 1995

32. Dwyer, J.F. and E. Pan, Edge Function Analysis of Stress Intensity Factors in Cracked Anisotropic Plates, *International Journal of Fracture*, Vol. 72, pp. 327-342, 1995

33. Grannell, J.J. and J.F. Dwyer, Numerical Solution of Anisotropic Linear Elastic Fracture Problems – Edge Function Methods, *Key Engineering Materials*, Vol. 32, pp. 115-120, 1989

34. Dwyer, J.F., Functional Programming for Finite Elements, *Computers and Structures*, Vol. 33, No. 6, pp. 1343-1348, 1989

5.3 Professional Magazine Article

Open Arms: Q&A with Outreach Mathematician Jerry Dwyer, District Administration, Vol. 38, No. 11, Nov 2002

5.4 Conference Proceedings

1. A. Cloutier, J. Dwyer, S. Sherrod, Exploration of Hands-On/Minds-On Learning in an Active STEM Outreach Program. Proceedings of the American Society for Engineering Education, New Orleans, LA, 2016

2. J. Miorelli, N. Stambach, B. Moskal, J. Dwyer, Improving faculty perception of and engagement in STEM education, Frontiers in Education Conference (FIE), El Paso, TX, 2015, doi: 10.1109/FIE.2015.7344220

3. J. Miorelli, B. Moskal, J. Dwyer, Impacts of Outreach on Entering College Students' Interest in STEM. Proceedings of the American Society for Engineering Education, Seattle, WA, 2015

4. Opheim, T. L., P. R. B. Campanili, B. J. M. Lemos, L. A. Ovinge, J. O. Baggerman, K. C. McCuistion, J. Dwyer, M. L. Galyean, J. O. Sarturi, and S. J. Trojan, An evaluation of biofuel coproducts in feedlot diets: cattle growth performance, carcass characteristics, apparent nutrient digestibility, and water use assessment of feedstock sources. Proc. West. Section. Amer. Soc. Anim. Sci. 66, 2015

5. Erturk, S.N. and J.F. Dwyer, Eigenvalues, Anisotropy and Edge Cracks, Proceedings of 25th Mid-Western Mechanics Conference, Rapid City, SD, Sept. 1997

6. Pan. E. and J.F. Dwyer, A General BEM Analysis of Fracture Mechanics in Anisotropic 2D Solids, Proceedings of 25th Mid-Western Mechanics Conference, Rapid City, SD, Sept. 1997

7. Pfeffer, W.T., M.R. Kaplan, M. Dyurgerov, J. Dwyer and C. Sassolas, Mass Balance Reconstructions to Control Numerical Modeling of Advances Across Hudson Strait During the Late Glacial Time, Proc. Biennial Meeting of American Quaternary Association, Flagstaff, AZ., U.S.A., 1996

8. Pfeffer, W.T., M. Dyurgerov, M.R. Kaplan, A. Jennings, J. Dwyer and C. Sassolas, Numerical Modeling of Late Glacial Laurentide Advance of Ice Across Hudson Strait at Younger Dryas Time : Insights into Terrestrial and Marine Geology, Mass Balance, and Calving Flux, Proc. 26th Arctic Workshop, Boulder, Colorado, U.S.A., 1996

9. Pfeffer, W.T., J. Dwyer, C. Sassolas, M. Dyurgerov, M.R. Kaplan, A. Jennings, Late Glacial Laurentide Advance of Ice Across Hudson Strait at Younger Dryas Time : Numerical Modeling of Advance of a Calving Glacier Terminus, Proc. of 6th Annual Meeting on Greenland Mass Balance and Related Matters in Copenhagen, Denmark, 1996

10. Vinogradov, A.M. and J.F. Dwyer, Non-linear Stability Analysis of Multi-layered Asymmetric Laminates, Proc. 12th U.S. Natl. Congr. of Applied Mechanics, Seattle, U.S.A., 1994

11. Dwyer, J.F. and B. Amadei, The Edge Function Method : An Efficient New Numerical Technique for Rock Mechanics, Proc. First North American Rock Mechanics Symposium, Austin, Texas, U.S.A., June 1994

12. Dwyer, J.F., W.D. Keat and M.P. Cleary, Modelling of 3-D Mixed-Mode Fractures near Bimaterial Interfaces using Surface Integrals, Proc. Intl. Symp. on Boundary Element Methods, Boulder, Colorado, U.S.A., 1992

13. Grannell, J.J. and J.F. Dwyer, Orthotropic Beam and Plate Problems - an Edge Function Method, Proc. Intl. Conf. on Boundary Elements in Engineering, Atlanta, U.S.A., 1988

14. Grannell, J.J. and J.F. Dwyer, A Boundary Galerkin Edge-Function Approach to Anisotropic Elasticity, Proc. 9th Intl. Conf. on Boundary Elements in Engineering, Stuttgart, Germany, 1987

5.5 Conference Presentations/posters/workshops

1. Dwyer, J. F. and Cloutier, A.M., Exploration Of Some Dynamics Of The Complex Sine Function, Joint Mathematics Meetings, Seattle, WA, January 2016

2. Cloutier, A.M. and Dwyer, J. F., Combining sports and STEM in activity-based lessons for middle school students, Joint Mathematics Meetings, Seattle, WA, January 2016

3. Cloutier, A, Green, W., Sherrod, S., and Dwyer, J., Middle school students explore the STEM in sports, Joint Mathematics Meetings, Seattle, WA, January 2016

4. Williams, G. B. and Dwyer, J. F., The Master of Mathematics program for in-service teachers at Texas Tech University, Joint Mathematics Meetings, Seattle, WA, January 2016

5. Cañas-Carrell, J., Dwyer, J., Jang, S., McIntyre, N., Spott, J., and Williams, G, B., The PRISM Scholars Program at Texas Tech University, Joint Mathematics Meetings, San Antonio, TX, January 2015

6. Pearce, K., Dwyer, J., and Williams, B., South Plains Mathematics Fellow Program: A partnership to attract new STEM students as mathematics majors, Joint Mathematics Meetings, San Antonio, TX, January 2015

7. Mathematics Teaching Transformed - Lessons to be Learned, Jerry Dwyer, MAA Mathfest, Portland, OR, Aug 2014

8. Surviving Active Learning in Mathematics, Jerry Dwyer, Levi Johnson and Brock Williams, MAA Mathfest, Portland, OR, Aug 2014

9. Ellingson, L., Dwyer, J., Johnson, L., and Spott, J., Texas Tech Summer Math Academy, Joint Mathematics Meetings, Baltimore, MD, January 2014

10. Casadonte, D., Dwyer, J., Lee, J., Schovanec, L., and Stevens, T., Texas Tech Noyce Scholars Program, Joint Mathematics Meetings, Baltimore, MD, January 2014

11. Cañas-Carrell, J., Dwyer, J., Johnson, L., Muñoz, J., and Schovanec, L., Integrated STEM Initiative on the South Plains, Joint Mathematics Meetings, Baltimore, MD, January 2014

12. Cañas-Carrell, J., Dwyer, J., Schovanec, L., and Johnson, L., Institutionalizing STEM Education & Outreach at Texas Tech University, 14th Annual Engagement Scholarship Conference, Engagement Scholarship Consortium, Lubbock, TX, October 2013

13. Sherrod, S., Dwyer, J., and Narayan, R., Developing science and math integrated activities for middle school students, GK-12 Building Bridges: Capstone Conference, Lubbock, TX, June 2013

14. Dwyer, J., Johnson, L., Math clubs: a new paradigm for extending grassroots efforts to national initiatives, MAA Texas Section, Lubbock, TX, April 2013

15. Johnson, L., Dwyer, J., Mentorship in Undergraduate Mathematics, MAA Texas Section, Lubbock, TX, April 2013

16. Williams, E., Dwyer, J., Barnard, R., Some properties of the Newton map for Rational Functions, MAA Texas Section, Lubbock, TX, April 2013

17. Jang, H. J., Williams, G. Brock, Cañas, J., Dwyer, J., McIntyre, N., Tapping the Research Experience for Undergraduates in Mathematics and Biology, MAA Texas Section, Lubbock, TX, April 2013

18. Active Learning in STEM, Panelist in session at the Ninth Annual Advancing Teaching and Learning Conference, Lubbock, TX, February 2013

19. Dwyer, J., Johnson, L., Sherrod, S., Faculty Perceptions of Mentoring Underrepresented Students, Joint Mathematics Meetings, San Diego, CA, January 2013

20. Dwyer, J., Pearce, K., Williams, G. Brock, Mentoring Paradigms for Underrepresented Groups in STEM Scholarship Programs, Joint Mathematics Meetings, San Diego, CA, January 2013

21. Texas Tech Noyce Scholars: Facilitating Self-Determination in Future Math and Science Teachers, Jerry Dwyer and Tara Stevens, MAA Rocky Mountain Section meeting, Denver, CO, April 2012

22. From Grass Roots to World Wide: The Texas Tech Math & Science Club, Levi Johnson and Jerry Dwyer, MAA Rocky Mountain Section meeting, Denver, CO, April 2012

23. Mathematical Modeling for pre-service middle school teachers, Jerry Dwyer and Patty Schovanec, MAA Mathfest, Lexington, KY, Aug 2011

24. Scholarship of Outreach, J. Dwyer, Community Engagement Conference, Lubbock, TX, March 2009

25. An investigation into the use of case studies in the training of in-service and pre-service middle school math teachers. Gary Harris, Jerry Dwyer, Zenaida Aguirre-Munoz, Tara Stevens, Warren Koepp, Juli D'Ann Ratheal, Featured Workshop, Rocky Mountain Section MAA meeting, Golden, CO, April 2009

26. The Texas Tech Noyce Scholars Program, Jerry Dwyer, Dominick Casadonte, Lawrence Schovanec, Tara Stevens, and Monty Strauss, poster presented at the AAAS Noyce Scholars Conference, Washington, DC, July 2009

27. Calculus II Students' Motivation and Instructors' Teaching Styles, Erin Skjelstad and Jerry Dwyer, MAA Mathfest, Portland, OR, Aug 2009

28. Laura Franks and Jerry Dwyer, "Joy of Thinking: Girls Math Clubs in West Texas", poster presented at the American Association of University Women (AAUW) 100th Anniversary Texas Biennial Convention, Dallas, TX, April 2008

29. Jerry Dwyer and Laura Franks, "Joy of Thinking: Girls Math Clubs in West Texas", poster presented at the 24th Annual All-University Conference on The Advancement of Women in Higher Education, Texas Tech University, February 2008

30. Dwyer, J., Arizpe, O., & Stevens, T. Mathematical Self-Efficacy of Middle School Students Solving the Rubik Cube. Poster paper presented at *Cognitive Underpinnings of Engineering Education*, Conference, Lubbock, TX. Feb. 2008

31. Yanik, E., Dwyer, J., & Martin, C. How Many Ways Can We Divide the Freshman Calculus Class? Poster paper presented at *Cognitive Underpinnings of Engineering Education*, Conference, Lubbock, TX. Feb. 2008

32. Laura Franks and Jerry Dwyer, "Joy of Thinking: Girls Math Clubs in West Texas", poster presented at The Joint AMS-MAA Meeting, San Diego, CA, January 2008

33. Cline, R., and J.F. Dwyer, No Boys Allowed: Assessing a Girls Only Math Club, Joint AMS-MAA Meetings, San Antonio, Jan 2006

34. Dwyer, J.F., Harris, G., Stevens, T., and G.B. Williams, Empowering K-12 Teacher to Use Technology Wisely, Joint AMS-MAA Meetings, San Antonio, Jan 2006

35. Dwyer, J.F., Chenault, L., and Duke, B., College Math in High School: Why Not?, Joint AMS-MAA Meetings, San Antonio, Jan 2006

36. Latin Squares, presented at Women Count conference, Albuquerque, NM Aug 2005

37. Cline, R., Dwyer, J.F., and T. Salinas, Lessons learned in Creating Girls Math Clubs, Math Fest 2005, Albuquerque, NM, Aug 2005

38. Cline, R., Dwyer, J.F., and T. Salinas, poster session, Joint AMS-MAA Meetings, Atlanta, Jan 2005

39. Dwyer, J.F. and T. Mclemore-Salinas, Middle School Girls' Math Clubs - a Gender Perspective. Presented at All University Conference on the Advancement of Women in Higher Education 2004 Commitments and Conflicts: Constructing a Balance. Lubbock, Texas. April 2004

40. Dwyer, J.F. and K.E. Hitchcox , Science and Engineering Models in Middle School. Presented at ASEE Gulf Southwest Annual Conference. Lubbock, Texas, March 2004

41. Dwyer, J.F. and K.E. Hitchcox, Models for Two Dimensional Surfaces and Gradients. Presented to the Mathematical Association of America, Boulder Mathfest 2003

42. Dwyer, J.F. and K.E. Hitchcox, Science Models in the K-12 Classroom. Presented to the Mathematical Association of America, Boulder Mathfest 2003

43. J.F. Dwyer, Mathematics Outreach: Why and How. MAA Rocky Mountain Section, Spring Meeting, Gunnison, CO, April 2001

44. Dunn, M.L., L.E. Carlson, J.F. Dwyer, T.L. Geers, Y.C. Lee, S. Mahalingam, G. Subbarayan, Online Laboratory Experiments in Mechanics, presented at US National Congress of Applied Mechanics, 1998

45. Amadei, B., C. Lin and J.F. Dwyer, Recent Extensions to the DDA Method, Keynote address delivered by B. Amadei at the 1st Intl. Forum on DDA, San Francisco, U.S.A., June 1996

5.6 Invited talks

EDUCATION and OUTREACH

- Developing collaborative educational outreach scholarship at a research university. Texas A&M University, March 2015
- Invited panel member, Mathematics Matters in Education: A Workshop in Honor of Roger Howe, Texas A&M University, March 2015
- The Outreach Mathematician: From Grassroots to Institutionalization, Missouri University of Science and Technology March 2013
- Non-linear transformation of a mathematics professor, Keynote/Plenary Address, Texas Oklahoma Research Undergraduate Symposium, Wichita Falls, TX February 2013
- Mathematical Sciences Research Institute, Critical Issues in the Mathematical Education of Teachers, The Perspective of an Outreach Mathematician: Bridging the Gap May 2011
- Korean teacher workshop at Colorado School of Mines Aug 2006
- MAA Texas Section Spring Meeting, Wichita Falls, TX April 2006
- Invited participant, Women Count conferences, Portland (2009), San Jose (2007), Albuquerque (2005), Boulder (2003)
- Invited participant, Minority Programs panel, MAA Mathfest, San Jose Aug 2007
- Invited participant "National Math View" panel discussion at Math Fest 2005, Albuquerque, NM Aug 2005
- Invited participant in panel discussion on K-12 math curriculum at NCTM annual meeting, Anaheim, CA April 2005
- Invited participant in panel discussion on teacher education at AMS sectional meeting Albuquerque, NM Oct 2004
- Colorado School of Mines, Golden, CO Feb 2005
- Texas Tech Univ. Feb 2003
- Iowa State Univ. Jan 2003
- Texas Tech Univ. Jul 2002
- New Mexico State Univ. Dec 2001
- Univ. of Wyoming Mar 2001
- Univ. of Tennessee Mar 2000

APPLIED MATH and NUMERICAL METHODS

- Univ. of Colorado Sept 1999
- Colorado State Univ. Mar 1995
- Texas Tech Univ. Dec 1994
- Univ. of Missouri, Rolla June 1994
- Stanford Univ. Apr 1994
- Washington State Univ. Apr 1992
- Tulsa, OK Feb 1992

5.7 Conference Workshops Organized/Conducted

- Organized and moderated panel discussion on Math Placement Testing, Joint AMS-MAA meeting, Washington, DC, January, 2009
- Organized and chaired panel discussion on outreach at Fall 2004 meeting of Texas mathematics chairs.
- Organized and chaired panel discussion on service learning at AMS-MAA joint meetings Phoenix, AZ Jan 2004
- Organized and chaired fracture mechanics session at 1997 Mid-Western Mechanics Conference

6 GRANT FUNDING

6.1 Funding at Texas Tech (approximately $17.0 m)

2015

- PI on American Mathematical Society, Epsilon Fund, TexPREP grant $8,250 2015 (co-PI Jim Brown)
- Co-PI on MAA funded "Dolciani Math Enrichment Program", $3,000 2014 (PI Lih Ing Roegor)

2014

- PI on Texas Tech Noyce Scholars Phase II (TTNS-II), NSF, $799,643 2014-2019 (Co-PI's Zenaida Aguirre-Muñoz, Jaclyn Cañas-Carrell, Tara Stevens, Brock Williams)
- Co-PI on South Plains Mathematics Fellows, NSF-DUE, $645,030 2014-2019 (PI Kent Pearce, Co-PI's Krista Cohlmia, Margaret Wade, Brock Williams)
- Co-PI on MAA funded "Dolciani Math Enrichment Program", $6,000 2014 (PI Leif Ellingson)
- PI on Helen Jones foundation TexPREP grant $25,000 2014 (co-PI Jim Brown)

2013

- Co-PI on MAA funded "Dolciani Math Enrichment Program", $6,000 (PI Leif Ellingson)
- PI on CH foundation TexPREP grant $15,000 2013 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $25,000 2013 (co-PI Jim Brown)
- PI on Herlin foundation TexPREP grant $7,000 2013 (co-PI Jim Brown)
- PI on Halliburton foundation TexPREP grant $12,500 2013 (co-PI Jim Brown)

2012

- PI on CH foundation TexPREP grant $15,000 2012 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $25,000 2012 (co-PI Jim Brown)
- PI on Lubbock Area foundation TexPREP grant $5,000 2012 (co-PI Jim Brown)
- PI on BNSF foundation TexPREP grant $2,500 2012 (co-PI Jim Brown)
- Evaluator on An Innovative Interdisciplinary Cybersecurity Education Program for Protecting Critical Infrastructure. NSF $299,967 2012-2014 (PI Joe Urban)

2011

- PI on CH foundation TexPREP grant $15,000 2011 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $15,000 2011 (co-PI Jim Brown)
- Co-PI on Adaptive Mathematics Problem Solving: Assessing and Adapting to Students While They Are Learning. Gates Foundation $144,394 2011-2012 (PI Fethi Inan)
- Co-PI on SMTSP: Secondary Mathematics Teacher Support Program. $65,072 2011-2012 (Co-PI's: Craig Mccarron, Lance Drager, Jeffrey Lee)

2010

- Co-PI PRISM: RMR-TTU: Recruitment, Mentoring, and Research in Mathematics and Science at Texas Tech University. NSF $1.45m 2010 – 2015 (PI Brock Williams; Co-PI's Jaclyn Cañas, Sophia Jang, Nancy McIntyre)
- Co-PI on Texas Tech University Women's Summer Math Academy. MAA/TENSOR-SUMMA $6,000 2010 (PI Victoria Howle)
- PI on CH foundation TexPREP grant $15,000 2010 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $15,000 2010 (co-PI Jim Brown)

2009

- Co-PI on Integrated Stem Initiative on the South Plains. NSF $1.1m 2009-2014 (PI Guy Bailey; Co-PI's Jaclyn Cañas, Juan Munoz, Lawrence Schovanec)
- PI on Texas Tech Noyce Scholars supplement. NSF $148,000 2009-2013 (Co-PI's Dominick Casadonte, Lawrence Schovanec, Tara Stevens, Monty Strauss)
- Co-PI on MAA/TENSOR-SUMMA, "Texas Tech University Women's Summer Math Academy" $6,000, 2009 (PI Victoria Howle)
- PI on CH foundation TexPREP grant $15,000 2009 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $15,000 2009 (co-PI Jim Brown)

2008

- PI on CH foundation TexPREP grant $15,000 2008 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $15,000 2008 (co-PI Jim Brown)
- Co-PI on MAA/TENSOR-SUMMA, "Texas Tech University Women's Summer Math Academy" $6,000 2008 (PI Victoria Howle, Co-PI Tara Stevens)
- PI on Texas Tech Noyce Scholars, NSF, $740,725 2008-2013 (Co-PI's Dominick Casadonte, Lawrence Schovanec, Tara Stevens, Monty Strauss)
- Co-PI on West Texas Middle School Mathematics Partnership. NSF $6.1m – 2008-2013 (PI Gary Harris; Co-PI's Zenaida Aguirre-Munoz, Warren Koepp, Tara Stevens)
- Co-PI on "Middle School Math and Science $(MS)^2$: Understanding by Design". Greater Texas Foundation $3m 2008-2013 (PI Jennifer Wilhelm)

2007

- Co-PI on MAA/Tensor Foundation proposal "The Joy of Thinking" $3,500 2007 (PI Magdalena Toda)
- PI on South Plains Mathematics Scholars, NSF-DUE, $571,580 2007-2012 (Co-PI's Michael O'Boyle, Padmanabhan Seshaiyer, Monty Strauss, Brock Williams)
- PI on CH foundation TexPREP grant $15,000 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $15,000 2007 (co-PI Jim Brown)
- Co-PI on GK-12, Building Bridges: Integrating Mathematics, Engineering, and Science on the South Plains. NSF. $2.7m 2008-2013 (PI Dominick Casadonte; Co-PI's Mary Baker, Kim Perry, Jennifer Wilhelm)

2006

- PI on CH foundation TexPREP grant $15,000 2006 (co-PI Jim Brown)
- PI on XCel Energy foundation TexPREP grant $10,000 2006 (co-PI Jim Brown)
- PI on Helen Jones foundation TexPREP grant $10,000 2006 (co-PI Jim Brown)
- PI on Texas Tech University Summer Mathematics Academy, AMS Epsilon Fund, $2,500 2006 (co-PI Padmanabhan Seshaiyer)
- Co-PI on TEA grant $108,000, Texas Dept. of Education 2006-2007 (PI Gary Harris)
- Senior Personnel on NSF grant: REU: Multidisciplinary Summer Undergraduate Research Program in Computation and Control of Biological and Biologically Inspired Systems. $170,707, 2005-2006

2005

- PI on CH foundation TexPREP grant $15,000 2005 (co-PI Jim Brown)
- PI on XCel Energy foundation TexPREP grant $10,000 2005 (co-PI Jim Brown)
- Co-PI on MAA/Tensor Foundation grant of $4,000. "The Joy of Thinking", program to enhance middle school girls' math skills 2005 (PI Magdalena Toda)
- PI on College of Arts & Sciences (Texas Tech) REF funds $3415 "College Math in high school – why not?" 2005

2004

- PI on CH foundation grant $10,000, TexPREP-Lubbock 2004 (co-PI Jim Brown)
- PI on XCel Energy foundation grant $10,000, TexPREP-Lubbock 2004 (co-PI Jim Brown)

2003

- Co-PI on MAA/Tensor Foundation grant of $4,000 2003-2004. "The Joy of Thinking", program to enhance middle school girls' math skills (PI Magdalena Toda)

6.2 Funding at University of Tennessee (approximately $323,000)

- PI on NSF grant no. DUE-0122864 $309,075 Jan 1 2002 to Dec 31 2005. "Appalachian Scholars in Computer Science and Mathematics".
- PI on $6,000 grant for inquiry based learning project, Spring 2003, from DuPont Corporation (administered through College of Arts and Sciences and the College of Education, University of Tennessee).
- Co-PI on MAA/Tensor Foundation grants of $5,000 2002-2003, and $3,000 2001-2002. "Mad about Math", program to enhance middle school girls' math skills.

6.3 Funding at University of Colorado (approximately $75,000)

- Math for Bilingual Students grant of $9,000 from the CU-Boulder Outreach Committee May 2000.
- Creative Arts Subsidy of $2,300 from the University of Colorado. June 1999-June 2000
- PI on elementary school math tutoring grant of $20,000 from New Century Energies Foundation. April 1999.
- Native American Outreach grant of $8,000 from the CU-Boulder Outreach Committee June 1999.
- University of Colorado Continuing Education funding of $1000 to support development of Internet version of Pre-calculus course. June 1999.
- University of Colorado Faculty Teaching Excellence Program funding of $1980 for "Technology in Mathematics Education" proposal. September 1999.
- PI on elementary school math tutoring grant of $6,000 from the John S. and James L. Knight Foundation Fund of The Denver Foundation. March 1998.
- PI on Native American outreach (math tutoring) grant of $3,000 from the Division of Continuing Education University of Colorado March 1998.
- PI on elementary school math tutoring grant of $3,000 from the Greenlee Family Foundation. July 1998.
- PI on elementary school math tutoring grant of $20,000 from New Century Energies Foundation. June 1998.
- Service Learning Fellowship grant of $1500 from the University of Colorado. December 1998.

6.4 Funding for Mechanics Projects (approximately $459,000)

- Co-PI on NSF grant no. CMS-9622645 $49,632 Feb 15 1996 to Jan 31 1997. "A 2-D Coupled Boundary Element and Edge Function Method with Application to Rock Fracture Problems".
- Co-PI on NSF grant no. OPP-9634289 $399,953 Oct 1 1996 to Dec 31 1999. "A New methodology for Assessing Glacier Mass Balances and Runoff for Global Studies of Climate Change and Sea-Level Rise".
- PI on two local industry grants ($7,000 and $2000) from University of New Hampshire. Jan 1 1997 to July 31 1997. Finite Element analysis of non-linear ball bearing manufacturing process and analysis of elliptical fastener.

7. TEACHING

7.1 Courses taught

George Washington University: Math for Politics
Texas Tech University: Graduate topology course (online), Math for elementary school teachers, Proofs, Advanced Calculus, Calculus for middle school teachers, Finite Math, Complex variables, Differential equations, Computing for teachers, Graduate courses for teachers: Special topics in computation and proofs; Online courses in topology; Assessment in math and science
University of Tennessee, Knoxville: Calculus, College Algebra, Proofs, Quantitative Reasoning, Graduate topics for high school math teachers, Complex variables, Math for Elementary teachers, In-service math for middle school teachers
University of Colorado, Boulder: Calculus for engineers, Dynamics, Quantitative reasoning, Graduate mechanics course, Pre-calculus, Multi-variable calculus
University of New Hampshire: Statics and dynamics, Advanced numerical methods (FEM, BEM)
Colorado School of Mines: Graduate course in finite elements
Regional College Cork, Ireland: Numerical methods, Programming languages, Software engineering, Computing for medical scientists
University College Cork, Ireland: Numerical methods

7.2 Awards

- Texas Association of Partnerships in Education (TAPE) first place in state for collegiate partnership (awarded for girls' math club at Atkins Middle School) 2006
- MAA Professor of the Year (student recognition) 2006-2007
- MAA Professor of the Year (student recognition) 2007-2008
- Professing Excellence Award, 2009 – campus wide student housing teaching recognition
- Texas Tech Integrated Scholar 2011 http://www.depts.ttu.edu/provost/scholars/jerrydwyer.php
- Champion Of Women (C.O.W) in Science – awarded by West Texas Chapter of the Association for Women in Science 2014
- Nominee, Faculty Excellence in Diversity, Texas Tech University 2015

7.3 Pedagogical Accomplishments

Course coordinator Math 1300 (Contemporary Math) Spring 2004
Course coordinator pre-service middle school math courses 2010-2015
Development of *Mathematics Education PhD.* Option, 2008
Faculty Fellow Mentor for *Service Learning* Texas Tech University 2006-2007, 2014-2015

7.4 Research Direction

7.4.1 Chair/Co-Chair of Doctoral Committees

PhD 2013 Erin Williams, Categorization of all Newton maps conjugate to quadratic polynomials
PhD Ganga Acharya, in progress

7.4.2 Member of Doctoral Committee

PhD 2011 James Valles, Equilibrium Distribution of Charges, Capacities, and Affine Mappings
PhD 2017 Xu Niu, Mathematics Prerequisites for Doctoral Level Studies in Finance
PhD 2016 Philena Farmer, Teacher Preparation Programs and Calculator Pedagogy

7.4.3 Chair of Masters Committees

MS 2013 Micah Pearce, (An Exploration of Tensile Fracture in a Nonhomogeneous Elastic Material)
MS 2013 Diana De La Torre, (Newton's Map of Cos (z))
MS 2013 Kasey Bray, (Iteration of the Newton Map of tan (z))
MS 2012 Levi Johnson, Texas Tech University (Enhancement of faculty skills through mentoring)
MA 2011 (Report), Leticia Saiid, Texas Tech University (Enhanced Faculty Skills Through Mentoring)
MA 2010 (Report), Tammy Werner, Texas Tech University (Fractals via Fixed Point Iteration)
MA 2010 (Report), Scottie Wei, Texas Tech University (Contrasts in two NSF GK-12 programs)
MS 2009 Erin Skjelstad, Texas Tech University (The Influence of Teacher Practice on Calculus Students' Motivation)
MS 2009 Ryan McCluskey, Texas Tech University (Teacher Immediacy and Learning Mathematics: Effects on Students with Divergent Mathematical Aptitudes)
MA 2008 (Report), Laura Franks, Texas Tech University (Gender Biases: A Review of Women's Roles in Mathematics and Single-sex Schooling)
MS 2006 Omar Arizpe, Texas Tech University (A Problem Solving Application In Mathematics Education)
MS 2006 Jessica Parras-Cisneros, Texas Tech University (Numerical Methods in Elasticity)
MA 2006 (Report) Andrew Ha, Texas Tech University (Alternative assessment in pre-service teachers' geometry course)
MA 2006 (Report) Sonya Sherrod, Texas Tech University (Integrated math/science modules)
MS 2005 Billy Duke, Texas Tech University (A College Approach to Fractals in Middle School)
MS 2005 Terra Stout, Texas Tech University (Do College Proofs Work in High Schools?)
MS 2005 Amanda Klein, Texas Tech University (The Effects of Computer Assisted Learning Software on College Algebra Students)
MS 2005 Leah Chenault, Texas Tech University (Improving the Algebra and Geometry Skills of High School Students using Complex Variables and Complex Transformations)
MA 2004 (Report) David Cook, Texas Tech University (Newton's method and fractals)
MS 2002 Jennifer Corte, Univ. of Tenn. (complex dynamics)
MS 2001 Nikki Smith, Univ. of Tenn. (wavelets)
MS 2001 Kathryn Thomasson, Univ. of Tenn. (complex roots)
ME 1997 Fouad Hafiani, Univ of New Hampshire (engineering stress analysis)

7.4.4 Undergraduate/Honors Committee

2015 Sarah Jackson, Mathematics Department, Texas Tech University
2012 Micaela Esch, Honors College, Texas Tech University
2008 Amanda Allen, Honors College, Texas Tech University
2001 McNair Scholar Christopher Leak, University of Tennessee

8. OUTREACH AND SERVICE ROLES

8.1 Department

- Math Education and Noyce Scholars Seminar, Organizer 2005-2015
- Summer Math Academy, Lecturer (June 13, 2011 - June 18, 2011).
- Presenter teacher and student workshops at Emmy Noether Day 2005-2015
- Co-Director of high school summer math academy Texas Tech University 2004-2015
- Director of summer TexPREP program Texas Tech University 2004-2015
- Assistant Instructor, West Texas Middle School Math Partnership, Summer courses, Texas Tech University and Sul Ross State University, July 2009
- Three TA evaluations per year 2004-2013
- Developer Math Education option for Math PhD program 2006-2009
- Tenure and Promotion Review Committee 2013

8.2 College

Arts & Sciences STEM Council, Developed STEM outreach plans, T&P reward structures; STEM Center proposal.

8.3 University

- STEM Education and Outreach network, Program Coordinator, 2009 – 2013; (details in Appendix)
- Coordinator of STEM Outreach Texas Tech University (25% appointment)
- Chaired subgroup drafting tenure and promotion criteria for outreach scholarship
- Service learning faculty fellow (2006-2007) and mentor (2014-2015)
- TEACH Fellows review panel – TLTC 2006-2007
- Member of advisory board of TTU chapter of SACNAS (Society for Advancement of Chicanos and Natives Americans in Science)

8.4 Grant proposal reviews

- Member of NSF S-STEM panels Jan 2008, Oct 2008, Nov 2009
- Member of NSF Critical Site Visit panel – University of Wisconsin, Milwaukee, June 2005
- Member of NSF Critical Site Visit panel – Michigan State University, June 2005
- Member of NSF Instructional materials panel Oct 2002
- Member of NSF teacher education review panel, Oct 2001

8.5 Journal reviewer

- Issues in the Undergraduate Mathematics Preparation of School Teachers
- Notices of the AMS
- International Journal of Solids and Structures
- International Journal of Mathematical Education in Science and Technology

8.6 Societies

- Member of American Mathematical Society
- Member of Mathematical Association of America
- Member of National Council of Teachers of Mathematics
- Member of MAA-NCTM Joint Committee on Mutual Concerns (2005-2008)

8.7 Other educational programs, service, and workshops (2003-)

- Math module development team member, Louisiana math teachers professional development May 2016
- External reviewer University of Mississippi Mathematics Department March 2016
- Math teachers circles workshops: University of Colorado Denver, Sept 2014; University of New Mexico, Feb 2015
- Noyce scholars workshops, "What you can learn with play-doh: from contour maps to multi-dimensional calculus", University of Montana, August 2014; University of Colorado Denver, Sept 2014
- Member of College Board Assessment team, January 2007
- Facilitator of pre-semester algebra camp for freshmen Engineering students 2006-2009
- Coordinator of service learning activities in several Texas Tech University, University of Tennessee and University of Colorado mathematics classes
- LOGO workshop for Lubbock middle school teachers June 2006
- Organizer of ten K-8 girls' math clubs (MAA/Tensor funding) 2003-
- Director of summer TexPREP program Texas Tech University June/July 2004-
- Member of Mathematicians Study Group examining K-12 mathematics curriculum, Park City, Utah, July 2004
- Member of mathematics group at NCTM/ASSM study of K-12 state curricula, Park City, Utah, July 2004
- Organized and co-presented "Mathematical Models in Science" workshop for teachers, Lubbock, TX, July 2003
- Organized and co-presented "Mathematical Models in Science" workshop for teachers, Scott County, TN, June 2003
- One hundred and thirty (130) K-12 school visits Lubbock, Texas 2003-

8.8 Outreach at the University of Tennessee (2000-2003)

- Appalachian Rural Systemic Initiative – Sept 2000 – seminar for teachers
- Gibbs High School – Oct 2000 – address to Mu Alpha Theta
- Scott County – Oct 2000 – teacher seminar
- West High School – Oct 2000 - teacher seminar
- Wayne County, KY – Nov 2000 – teacher seminar
- Summer Academy, Univ. of Tenn. – July 2001 – teacher seminar
- Farragut High School – Oct 2001 – presentation to Mu Alpha Theta
- Mu Alpha Theta, Regional Convention – Dec 2001 – games and math modeling
- Organizer of three middle school girls' math clubs (MAA/Tensor funding) 2001-2003
- One hundred (100) K-12 school visits Knoxville, Tennessee, 2000-2003

8.9 Outreach at the University of Colorado (1997-2000)

- Organized CU math outreach to Native American community in Ignacio Colorado school district.
- Leader CU math department tutoring projects in Boulder Valley elementary schools
- Organized CU math department participation in CU-In-Residence program in Ouray Colorado.
- Forty (40) K-12 school visits Boulder, Colorado, 1997-2000

9 Coordinator and directorship roles (2009 – 2016)

9.1 Texas Tech University (Coordinator of STEM Outreach)

- Organized campus wide STEM faculty network meetings
- Organized NSF external advisory board panel meetings
- Supervised budgets and payment for advisory board meetings
- Chaired campus subgroup drafting tenure and promotion criteria for outreach scholarship
- Supervised budgets and payment for STEM faculty and staff
- Hired and supervised work of Assistant STEM coordinators
- Supervised development of distance education initiatives
- Prepared annual NSF reports for STEM programs
- Recruited and mentored 30 Noyce Scholars
- Selected and supervised 25 Noyce summer scholars
- Managed budget and payment of scholarships
- Supervised development of summer math academies
- Facilitated ten after-school math clubs
- Mentored eight faculty campus-wide on grant proposal development

9.2 George Washington University (Director STEM Academy)

- Supervised Learning Assistant program
- Developed proposal for new Quantitative Reasoning course
- Taught Math for Politics course
- Facilitated active learning initiatives in STEM classes
- Organized weekly teaching seminar
- Chaired conference session on writing in diverse disciplines
- Developed network connections with non-STEM faculty (Writing, Business, Social Studies, Art)
- Submitted five major interdisciplinary grant proposals