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Adjunct/Affiliate Faculty Appointments: Arizona State University (Tempe, Arizona); Vrije Universiteit Brussels (Brussels, Belgium); The Nelson Mandela African Institute of Science and Technology (Arusha, Tanzania); Advanced Teacher Training College (Paramaribo, Suriname); Biomedical Engineering (George Mason University), Mathematics Education (George Mason University)

Dr. Padmanabhan Seshaiyer is a tenured Professor of Mathematical Sciences at George Mason University and serves as the Associate Dean for Academic Affairs in the College of Science, Director of the STEM Accelerator and the Director of COMPLETE (Center for Outreach in Mathematics Professional Learning and Educational Technology) at George Mason University in Fairfax, Virginia. His research interests are in the broad areas of computational mathematics, scientific computing, computational biomechanics and STEM education. In particular, his research in computational mathematics includes the development of new analytical techniques and efficient computational algorithms to obtain numerical solutions to differential equations describing multi-physics interactions. His research in computational biomechanics includes developing, extending and applying mathematics for the purposes of better understanding the physiology and pathophysiology of the human vascular system. Integrated with the research plan is a STEM education plan where the primary goal is to teach students and teachers at all levels to apply well-developed research concepts, to fundamental applications arising in STEM disciplines. During the last decade, Dr. Seshaiyer initiated and directed a variety of educational programs including graduate and undergraduate research, K-12 outreach, teacher professional development, and enrichment programs to foster the interest of students and teachers in STEM at all levels. During this time he received multiple grants from several agencies, including the National Science Foundation, the National Institutes of Health, Whitaker Foundation, Texas Advanced Research Program, Virginia Department of Education and State Council for Higher Education in Virginia. In addition to his research accomplishments, Dr. Seshaiyer contributed extensively to teaching and won several prestigious awards, including the President's Excellence Award in Teaching which is the highest award for teaching offered at two different institutions, the faculty mentoring excellence award in 2013, the GMU Alumni Faculty of the Year in 2014 and also has been nominated for the Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). He has delivered keynote and plenary talks at several national and international meetings. He is also one of the Nifty-Fifty speakers and an X-STEM Symposium Speaker for the USA Science and Engineering Festival invited for a fourth time and also has given two TEDx talks, the most recent one being "The M in STEM". He serves on several prominent local and national organizations including a newly formed VA-STEM learning network; the Virginia Mathematics and Science Coalition; the WashingtonExec STEM Council; the LEGO Education Advisory Panel (LEAP) and the Northern Virginia MATHCOUNTS board. In 2013 he was elected both as a new Councilor for the Mathematics and Computer Science Division of the Council on Undergraduate Research as well as the US National Commission for Mathematics Instruction by the National Academy of Sciences. He is also actively involved in multiple global STEM collaborative projects and training programs that engage students and faculty from various countries including Tanzania, Suriname, Philippines, Myanmar, Tunisia, India, Colombia, Ecuador, South Korea, Jamaica, Belize, Bahamas, Laos, Singapore and a more recently formed Latin-American Consortium of researchers from multiple countries.

In summary, Dr. Seshaiyer's contributions have included directing two major funded centers of excellence; mentoring research projects for over 175 students at all levels; publishing over 100 peer-reviewed journal articles and proceedings; authoring two graduate texts (one in Numerical Analysis and another on mathematical modeling for teachers); acquiring over $8 Million in grant funding (both state and federal) to promote multidisciplinary research, training and mentoring programs for students, teachers and faculty; directing over 25 new initiatives to accelerate STEM learning in formal and informal environments; developing global partnerships with over 12 countries for student and faculty exchange programs; leading new State-wide and Federal consortiums in teacher Professional Development; winning over 20 individual teaching, mentoring as well as program awards; delivering over 250 invited talks both nationally and internationally; being selected as a member of 5 prestigious National organizations and; with accomplishments featured through more than 50 media news coverage articles and stories; holding adjunct and affiliate professor positions at four different institutions and; has served as a Program Director at the National Science Foundation. More details about his work can be found at: http://math.gmu.edu/~pseshaiy/outreach.html.

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EDUCATION

1998	Ph.D. in Applied Mathematics University of Maryland, Baltimore County, Maryland.
1994	Master of Science (Honors) in Mathematics Birla Institute of Technology & Science, Pilani, India.
1994	Bachelor of Engineering (Honors) in Electrical & Electronics Engineering Birla Institute of Technology & Science, Pilani, India.

POSITIONS HELD

2017-Current	Associate Dean for Academic Affairs, College of Science, George Mason University
2015-2017	Program Director, Computational Mathematics Program, National Science Foundation
2013-Current	Director, STEM Accelerator Program, College of Sciences, George Mason University.
2012-Current	Professor (Tenured), Mathematical Sciences, George Mason University.
2010-Current	Director, COMPLETE (Center for Outreach in Mathematics Professional Learning and Educational Technology).
2017-Current	Adjunct Professor, Simon A Levin Mathematical, Computational and Modeling Sciences Center and College of Liberal Arts and Sciences, Arizona State University.
2017-Current	Adjunct Professor, Dept. Educational Sciences, Vrije Universiteit Brussels, Belgium
2015-Current	Adjunct Professor, Advanced Teacher Training Institute, Suriname, Paramaribo
2011-Current	Adjunct Professor, School of Computation, Communication, Science and Engineering Nelson Mandela African Institute for Science and Technology, Arusha, Tanzania.
2008-Current	Adjunct Professor, Mathematics Education Center, Graduate School of Education, George Mason University
2014-Current	Adjunct Professor, Bioengineering Program, Volgneau School of Engineering, George Mason University
2007-2012	Associate Professor (Tenured), Mathematical Sciences, George Mason University.
2005-2007	Associate Professor (Tenured), Mathematics and Statistics, Texas Tech University.
2000-2005	Assistant Professor (Tenure-Track), Mathematics and Statistics, Texas Tech University.
1998-2000	Post-Doctoral Research Associate, Biomedical Engineering, Texas A&M University.

RESEARCH

Computational Mathematics: Numerical Analysis; Numerical Solutions to Partial Differential Equations; Finite Element Methods: Linear and Non-linear Problems, the p and the hp versions, Non-conforming elements; Domain decomposition and numerical algorithms for commercial finite element codes; Structural Mechanics; Fluid-Structure Interaction; Numerical linear algebra for advanced scientific and parallel computing; Stability and Error analysis; Inverse problems; Stochastic PDEs.

Computational Biomechanics: Membrane mechanics; Constitutive formulations; Inverse finite element methods and parameter estimation; Fluid-structure interaction of blood flow through the arteries; Growth and remodeling.

STEM Education: Enhancing learning with new technologies; Pedagogical Content Knowledge; Mathematical Modeling for Teachers; Multicultural Education; K-12 Improving Teacher Quality Professional Development Programs; Mathematics Enrichment and K-12 outreach programs; Programs to enhance the next generation STEM (Science, Technology, Engineering & Mathematics) workforce. (http://math.gmu.edu/~pseshaiy/outreach.html)

PUBLICATIONS (BOOKS, JOURNALS, BOOK CHAPTERS AND PROCEEDINGS)

A. BOOKS (GRADUATE TEXTBOOK IN MATHEMATICS AND MATHEMATICS EDUCATION)

1. *Classical and Modern Numerical Analysis: Theory Methods and Practice*, CRC Press, a Taylor & Francis Company, A. Ackleh, R. Kearfott, E. Allen and P. Seshaiyer (2009).
2. *Modeling Mathematics Ideas,* Rowmann & Littlefield Publishers, J. Suh and P. Seshaiyer (2016).

B. ARTICLES IN REFEREED JOURNALS

B.1 Applied and Computational Mathematics

1. "Mathematical Modeling, Analysis and Simulation of the Spread of Gangs in Interacting Youth and Adult Populations", *Letter in Biomathematics*, M. Castro, P. Padmanabhan, C. Caiseda and P. Seshaiyer, Accepted (2019).
2. "Application of local improvements to reduced-order models to sampling methods for nonlinear PDEs with noise", *Int. J. of Computer Mathematics*, M. Raissi and P. Seshaiyer, pp1-11, (2017).
3. "Implementation of the Parareal Algorithm to Optimize Nanoparticle Transport in Porous Media Simulations", *Int. J. of Computational Methods*, A. Waghmare and P. Seshaiyer, In Press (2017).
4. "Enhancing Groundwater Quality Through Computational Modeling and Simulation to Optimize Transport and Interaction Parameters in Porous Media", Akhil Waghmare and Padmanabhan Seshaiyer, *Journal of Water Resource and Protection*, Vol 7: 398 – 409 (2015).
5. "A multi-fidelity Stochastic Collocation method for parabolic PDEs with random input data", M. Raissi and P. Seshaiyer, *Int. J. for Uncertainty Quantification*, Vol 4: 225 –242 (2014).
6. "Computational Mechanics of a coupled flow-structure interaction problem with applications to bio-inspired micro air vehicles", *International Journal of Aerospace and Lightweight Structures*, R. Banerjee and P. Seshaiyer, Vol. 3(3): 399–407 (2013).
7. "Multilevel Non-conforming finite element methods for coupled fluid-structure interactions", E. Aulisa, S. Garcia, E. Swim and P. Seshaiyer, *International Journal of Numerical Analysis and Modeling, Series* B, Vol 3(3), pp 307-319 (2012).
8. "Multiphysics Modeling and Simulation of Fluid-Structure Interaction applied to biological problems", F. Mihai, I. Youn and P. Seshaiyer, *Proc. Computer Science*, Vol 9, pp 615-623 (2012).
9. "Transforming Practice Through Undergraduate Researchers," P. Seshaiyer, *Council on undergraduate research Quarterly*, 33(1), pp 8-13 (2012).
10. "Stability of Membrane Elastodynamics with applications to Cylindrical Aneurysms", A. Samuelson and P. Seshaiyer, *Journal of Applied Mathematics*, doi:10.1155/2011/906475 (2011).
11. "Stability analysis of inhomogeneous equilibrium for axially and transversely excited nonlinear beam", E. Kaya, E. Aulisa, A. Ibragimov and P. Seshaiyer, *Communications on Pure and Applied Analysis*, Vol 10(5), pp1447-1462 (2011).
12. "Distributed Computational Methods for Coupled Fluid Structure Thermal Interaction Applications", E. Aulisa, S. Manservisi, P. Seshaiyer, A. Idesman, *Journal of Algorithms and Computational Technology*, Vol 4(3), pp 291-310 (2010).
13. "A multilevel domain decomposition approach for studying coupled flow application", E. Aulisa, A. Cervone, S. Manservisi and P. Seshaiyer, *Comm. in Comput. Physics,* Vol 6, pp 319-341 (2009).
14. "Benchmark problems for wave propagation in elastic materials", A. Idesman, H. Samajder, E. Aulisa and P. Seshaiyer, *Computational Mechanics*, Vol 43(6), pp 797-814 (2009).

15. "A stability estimate for fluid-structure interaction problem with non-linear beam", E. Kaya, E. Aulisa, A. Ibragimov and P. Seshaiyer, *Discrete and Cont. Dynamical System*, pp 424-432 (2009).
16. "Finite difference methods for coupled flow interaction transport models", S. McGee and P. Seshaiyer, *Electronic Journal of Differential Equations,* pp. 171-184 (2009).
17. "A computational domain decomposition approach for solving coupled flow-structure-thermal interaction problems", E. Aulisa, S. Manservisi, P. Seshaiyer, *Electronic Journal of Differential Equations*, pp. 13-31 (2009).
18. "A multilevel domain decomposition approach for solving coupled applications in Computational Fluid Dynamics", E. Aulisa, S. Manservisi and P. Seshaiyer. *International Journal for Numerical Methods in Fluids*, 56(8): pages 1139-1145 (2008).
19. "A computational methodology to study coupled physical processes over partitioned domains", S. Franklin, P. Seshaiyer and P. Smith, *Applied Mathematical Modeling*, pp 632-646 (2007).
20. "A nonconforming finite element method for fluid-structure interaction problems", E. Swim and P. Seshaiyer, *Comp. Methods in Applied Mechanics and Engineering* Vol 195, pp 2088-2099 (2006).
21. "A computational multilevel approach for solving 2D Navier-Stokes equations over non-matching grids", E. Aulisa, S. Manservisi and P. Seshaiyer, *Computer Methods in Applied Mechanics and Engineering*, Vol 195, 4604-4616 (2006).
22. "A non-conforming computational methodology for modeling coupled problems", E. Aulisa, S. Manservisi and P. Seshaiyer, *Nonlinear Analysis*, Vol 63 (5-7), 1445-1454 (2005).
23. "A three-field FEM for elliptic partial differential equations driven by stochastic loads, S. Franklin", P. Seshaiyer and P. Smith, *Stochastic Analysis & Applns*, Vol 23(4), 757-783 (2005).
24. "Intratrophic predation in a simple food chain with a fluctuating nutrient", S.R.J.Jang, J. Baglama and P. Seshaiyer, *Discrete & Continuous Dynamical Systems –Series B*, Vol 5(2), 335-352 (2005).
25. "Frictional Study of Woven Fabric: Relationship Between Friction and Velocity of Testing", D. Hermann, S. S. Ramkumar, P. Seshaiyer and S. Parameswaran, *Journal of Applied Polymer Science*, Vol 92, pp 2420-2424 (2004).
26. "Non-conforming finite element methods for nonmatching grids in three dimensions", W. McGee and P. Seshaiyer, Domain Decomposition Methods in Science and Engineering, *Lecture Notes in Computational Science and Engineering*, Kornhuber et. al. (Eds.), 40, pp 327-334 (2004).
27. "Fluid-Structure interaction using nonconforming finite element methods", E. Swim and P. Seshaiyer, Domain Decomposition Methods in Science and Engineering, *Lecture Notes in Computational Science and Engineering*, Kornhuber et. al. (Eds.), 40, pp 217-224 (2004).
28. "Computational Modeling of geophysical systems", S. Davenport and P. Seshaiyer, Computational Science and Its Applications, *Lect. notes in Comp. Sci.*, V. Kumar et. al., 2667, pp 523-532 (2003).
29. "Non-conforming hp mortar finite element methods for Stokes problems", F. Ben Belgacem, L. K. Chilton and P. Seshaiyer, Recent Developments in Domain Decomposition Methods, *Lecture notes in Computational Science and Engineering*, Pavarino and Toselli (Eds.) 23, pp 133-146 (2002).
30. "Stability and convergence of non-conforming hp finite element methods", P. Seshaiyer, *Computers & Mathematics with Applications*, Vol 46, pp 165-182 (2003).
31. "Non-conforming computational methods for mixed-elasticity problems", F. B. Belgacem, L. K. Chilton and P. Seshaiyer, *Computational Methods in Applied Math.*, Vol 3 (1), pp 1-12 (2003).

32. "The hp mortar fem for the mixed elasticity and Stokes problems", F. B. Belgacem, L. K. Chilton & P. Seshaiyer, *Computers & Mathematics with Applications*, Vol 46, pp 35-55 (2003).
33. "A non-conforming finite element method for submeshing", P. Seshaiyer and P. W. Smith, *Applied Mathematics and Computation*, Vol 139 (1), pp 85-100 (2003).
34. "Experimental study of the frictional properties of friction spun yarns", S. S. Ramkumar, L. Sashtri, R. W. Tock, D. C. Shelly, M. L. Smith and P. Seshaiyer, *Journal of Applied Polymer Science*, Vol 88(10), pp 2450-2454 (2003).
35. "The hp mortar domain decomposition method for problems in fluid mechanics", L. K. Chilton and P. Seshaiyer, *Int. Journal of Numerical Methods in Fluids*, Vol 40(12), 1561-1570 (2002).
36. "Uniform hp convergence results for the mortar finite element method", P. Seshaiyer and M. Suri, *Mathematics of Computations*, Vol 69, pp 521-546 (2000).
37. "hp submeshing via non-conforming finite element methods", P. Seshaiyer and M. Suri, *Computer Methods in Applied Mechanics & Engineering*, Vol 189(3), pp 1011-1030 (2000).
38. "Optimal convergence rates for hp mortar finite element methods for second-order elliptic problems", F. Ben Belgacem, P. Seshaiyer & M. Suri, *RAIRO Mathematical modeling and Numerical Analysis*, Vol 34(3), pp 591-608 (2000).
39. "Convergence results for non-conforming hp methods: The mortar finite element method", P. Seshaiyer & M. Suri, DDM 10, *Contemporary Mathematics*, Vol 218, pp 467-473 (1998).

B.2 Mathematical Biology, Epidemiology and Computational Biomechanics

40. Mathematical analysis and simulation of a coupled non-linear fluid structure interaction model with applications to aneurysms, M. Badgaish, J.E. Lin and P. Seshaiyer, *Communications in Applied Analysis*, 22, No. 4 (2018), 637-661.
41. "Harnessing the power of the recovering brain to promote recovery commitment and reduce relapse risk", Matto, H., & Seshaiyer, P., Journal of the Society for Social Work and Research, 9(2), 341-358 (2018).
42. "Computational and mathematical methods to estimate the basic reproduction number and final size for single-stage and multi-stage progression disease models for Zika with preventative measures", Padmanabhan, P. and P. Seshaiyer, *Computational and Mathematical Methods in Medicine*, 2017:4290825. doi: 10.1155/2017/4290825. Epub 2017 Aug 15.
43. "Mathematical modeling, analysis and simulation of the spread of Zika with influence of sexual transmission and preventive measures." Padmanabhan, P., P. Seshaiyer, and C. Castillo-Chavez, *Letters in Biomathematics* 4, no. 1 (2017): 148-166.
44. "Modeling, Computation and Simulation of Non-linear soft-tissue interaction with flow dynamics with applications to biological systems", *International Journal of Novel Ideas: Mathematics*, M. Badgaish and P. Seshaiyer, [S.l.], v. 1, p. 40-60, April 2017. ISSN 2331-5210 (2017).
45. "Nonlinear Dynamics and Analysis of Intracranial Saccular Aneurysms with Growth and Remodeling," M. Badgaish, J.E. Lin and P. Seshaiyer, *Journal of Nonlinear Dynamics*, Vol 2016, Article ID 2869083, pp 1 -12, (2016).
46. "Lessons from the Ebola Outbreak: Action Items for Emerging Infectious Disease Preparedness and Response," Jacobsen, K.H. et al., *EcoHealth* (2016) 13(1), 200-212.
47. "Stability Analysis of a Model of Atherosclerotic Plaque Growth," S. Reddy and P. Seshaiyer, *Computational and Mathematical Methods in Medicine*, DOI: 10.1155/2015/164035 (2015)

48. "Computational Methods for Coupled Fluid-Structure-Electromagnetic Interaction Models with Applications to Biomechanics", F. Mihai, I. Youn, I. Griva and P. Seshaiyer, *Mathematical Problems in Engineering,* Volume 2015 (2015), 10 pages, http://dx.doi.org/10.1155/2015/253179

49. "Modeling the evaporation of a tear film over a contact lens", K. Talbott, A. Xu, D. Anderson, P. Seshaiyer, *Mathematical Medicine and Biology*, IMA Journal of Mathematical Medicine and Biology, doi: 10.1093/imammb/dqu001 (2014)

50. "On the stability of lung parenchymal lesions with applications to early pneumothorax diagnosis". A.R. Bhandarkar, R. Banerjee and P. Seshaiyer, *Computational and Mathematical Methods in Medicine* doi: 10.1155/2013/679308. epub (2013).

51. "Numerical Modeling and Analysis of Fluid Structure Interaction in Application to Cerebral Arteries," A. Foster, D. Anderson and P. Seshaiyer, *GMU Review*, Vol 20, pp 62-73 (2011).

52. "Modeling, Analysis and Computation of Fluid-structure interaction models for biological systems," S. Venuti and P. Seshaiyer, *SIAM Undergrad. Research Online*, Vol 3, pp 1-17 (2010).

53. "A sub-domain inverse finite element characterization of hyperelastic membranes including soft tissues", P. Seshaiyer & J. D. Humphrey, *J. of Biomech. Engg*, Vol 125 (3), pp 363-371 (2003).

54. "On the protective role of contact constraints in saccular aneurysms", P. Seshaiyer and Jay D. Humphrey, *Journal of Biomechanics*, Vol 34, pp 607-612 (2001).

55. "Multiaxial mechanical behavior of human saccular aneurysms", P. Seshaiyer, F. P. K. Hsu, A. D. Shah, S. K. Kyriacou & J. D. Humphrey, *Computer Methods in Biomechanics and Biomedical Engineering*, Vol 4, pp 281-289 (2001).

56. "Adaptive survival trials", W. F. Rosenberger & P. Seshaiyer, *Journal of Biopharmaceutical Statistics*, Vol 7(4) pp 617-624 (1997).

57. "Erratum to Variance in randomized play-the winner clinical trials", P. Seshaiyer, *Statistics & Probability Letters*, Vol 35 p 240 (1997).

B.3 Mathematics Education/Outreach/Curriculum

58. "Split it! Unpacking the Equipartitioning Learning Trajectory", J. Suh, S. Birkhead, R. Farmer, T. Galanti, A. Niertert, T. Bauer, and P. Seshaiyer, Teaching Children Mathematics, Vol 25(6), pp 362-368, April 2019.

59. "International Collaboration through the Volunteer Lecturer Program", P. Seshaiyer, Notices of the American Mathematical Society, Vol 65 (8), pp1011-1014, September 2018.

60. "Challenges in school mathematics curriculum reform in India: Transforming teacher practices through pedagogical innovations", R. Banerjee and P. Seshaiyer, Chapter, Mathematics Education - An Asian Perspective, Springer (2018).

61. "A case study on Co-designing and implementing PBL in elementary math through mathematical modeling in STEM contexts," J. Suh and P. Seshaiyer, Chapter, Wiley Handbook of PBL (2018).

62. "Engaging Elementary Students in the Creative Process of Mathematizing Their World through Mathematical Modeling," Jennifer M. Suh, Kathleen Matson and Padmanabhan Seshaiyer, *Educ. Sci.* 7(2), 62; doi:10.3390/educsci7020062 (2017).

63. "Leading Undergraduate Research Projects in Mathematical Modeling," P. Seshaiyer, *Problems, Resources, and Issues in Mathematics Undergraduate Studies: PRIMUS*, PP 1-18, (2017).

64. "Enhancing student learning of differential equations through technology," P. Seshaiyer and P. Solin, *Int. Journal for Technology in Mathematics Education*, 24(4), 207-215 (2017).
65. "Leveraging Coach-Facilitated Professional Development to Create Collaborative Teacher Networks for Enhancing Professional Practice", APME*,* Chapter 7, pp 89 - 100 (2017).
66. "Co-designing and implementing PBL through Mathematical Modeling in STEM contexts," J. Suh and P. Seshaiyer. In Mahnaz, M. & N. Dabbagh (Eds). *Handbook of Problem Based Learning*. Wiley Publishing, Accepted and to appear (2017).
67. "Enhancing Pedagogical Practices Through Professional Development in Proportional Reasoning," *Virginia Mathematics Teacher*, Seshaiyer and Suh, Fall 2016, Vol. 43(1),
68. "Leveraging Coach-Facilitated Professional Development to Create Teacher Social Networks for Enhancing Professional Practice." Suh, J. M., Seshaiyer, P. et. al. In M. Boston & L. West (Eds.), *Annual Perspectives in Mathematics Education: Reflective and Collaborative Processes to Improve Mathematics Teaching*. Reston, VA: National Council of Teachers of Math (2016).
69. "Transforming Practices in Mathematics Teaching and Learning through effective partnerships", In: Dewar J., Hsu P., Pollatsek H. (eds) Mathematics Education. Association for Women in Mathematics Series, vol 7. Springer, Cham (2016)
70. "FOCUS: Females of Color in STEM", Chapter in Book: Girls and Women of Color in STEM: Navigating the Double Bind Research on Women and Education, Accepted and to appear (2016).
71. "Examining teachers' understanding of the mathematical learning progression through vertical articulation during Lesson Study", J. Suh and P. Seshaiyer, *Journal of Mathematics Teacher Education*, pp: 1-23 (2014).
72. "Developing Strategic Competence by Teaching Using the Common Core Mathematical Practices", J. Suh and P. Seshaiyer, *Annual Perspectives in Math Education*, Chapter 8, pp 77-87 (2014).
73. "Mapping teachers' understanding of the mathematical learning progression through vertical articulation during Lesson Study", Suh, J. M., & Seshaiyer, P., *American Educational Research Association Online Repository*, Philadelphia, PA (2014).
74. "The STEM Road Map for Grades 9-12", in *STEM Road Map: A Framework for Integrated STEM Education* edited by Carla C. Johnson with Erin E. Peters-Burton and Tamara J. Moore (2014).
75. "Mathematical Practices That Promote 21st Century Skills", J. Suh and P. Seshaiyer, *Mathematics Teaching in the Middle School,* NCTM, 19(3), pp 132 - 137 (2013).
76. "Being an environmentally friendly package engineering", J. Suh, P. Seshaiyer, K. Moore, M. Green, H. Jewell, and I. Rice, *Math Teaching in Middle School*, NCTM, 20(4), pp 261-263 (2013).
77. "STAIRS, STEPS, STEM: Exploring Slope Connections", T. Smith, P. Seshaiyer, N. Peixoto and J. Suh, *Teaching Children Mathematics*, NCTM, 18(6), pp 370 – 377 (2013).
78. "The King Has a Really Big Bowl: Mangos and Misconceptions", P. Seshaiyer and P. Freeman, Teaching Children Mathematics, NCTM, 19(2), pp 128 (2012).
79. "Modeling 10-ness using Technology in the Elementary Classrooms", J. Suh and P. Seshaiyer, *Teaching Children Mathematics*, NCTM, 18(9), pp 574-579 (2012).
80. "Unlocking the locker problem with technology", P. Seshaiyer, J. Suh and P. Freeman, *Teaching Children Mathematics*, NCTM, Vol 18(5), pp 322-325 (2011).

81. "Developing teachers' representational fluency and algebraic connections", Suh, J.M., Seshaiyer, P., Freeman, P. and Jamieson, T.S. In Wiest, L. R., & Lamberg, T. (Eds.). Proceedings of the 33rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. 738-746 (2011).
82. "Coordinate Geometry: History and Development of Curricular Concepts: Algebra, Geometry, Communication, Connections", *Encycl of Mathematics and Society,* Golson Media Eds (2011)
83. "Student misconceptions caused by misuse of technology", R. Paige, P. Seshaiyer and M. toda, *International Journal for Technology in Mathematics Education*, Vol. 14(4), pp 189-196 (2007).
84. "Calculation across Cultures and History", C.R. Seaquist, P. Seshaiyer and D. Crowley, *Texas College Mathematics Journal*, Vol 1, 15-31 (2005).
85. "The Professional Master's Degree: A New Option", L. E. Marano, K. Pedersen, P. Seshaiyer and J. Slimowitz, *MATH HORIZON*, pp 14-18, February (2003).

B.4 ARTICLES IN REFEREED PROCEEDINGS

86. "Design Thinking and computational modeling to stop illegal poaching." Padmanabhan, Pradyuta, Alexander Baez, Carmen Caiseda, Kathleen McLane, Nithin Ellanki, Padmanabhan Seshaiyer, Byong Kwon, and Erick Massawe. In *Proceedings of the Integrated STEM Education Conference (ISEC),* 2017 IEEE, pp. 175-181. IEEE, 2017.
87. "Modeling, Computation and Simulation of non-linear soft-tissue interaction with flow dynamics with application to biological systems", M. Badgaish and P. Seshaiyer, *Proceedings of the International Conference on Computational Methods*, Vol 3, pp 1229-1242, 7th ICCM2016 (2016).
88. "The role of information technology in engaging elementary students in mathematical modeling and computational thinking." Suh, J. M. & Seshaiyer, P. *Proceedings of the Society of Informational Technology Education*. Savannah, Georgia: AACE (2016).
89. "Conceptual Understanding of Proportional Reasoning via Poster Proofs in Teacher Professional Development," Padmanabhan Seshaiyer, Jennifer Suh and Mimi Corcoran, *Proceedings of the 7th ICMI-East Asia Conference on Mathematics Education.* (2015).
90. "Advancing Graduate Education & Faculty Development with Discipline Based Education Research & SIMPLE Framework: Design Memos in Biology for Active Teaching," Schwebach, R. et. al., Proceedings of the Athens Institute for Education & Research Conference (2015).
91. "An International Collaboration to Cultivate Global Innovators" , Nathalia Peixoto, Jennifer Suh, Padmanabhan Seshaiyer, Kwan H Lee, Yunsuk Jung, and Daniel Suh, *Proceedings of the International Conference on Engineering Education and Research*, Pages 185-191 (2014).
92. "Inquiry-based approaches in K-12 classrooms to empower the next generation STEM workforce", P. Seshaiyer, J. Suh, N. Peixoto, M. Long, M. Corcoran, & V. Grewal, *Proceedings of the Frontiers in Education Conference* (FIE), 2014 IEEE (pp. 1-8). IEEE (2014).
93. "Critical learning experiences for Korean engineering students to promote creativity and innovation.", Suh, J., Seshaiyer, P., Lee, K. H., Peixoto, N., Suh, D., & Lee, Y. (2014, October). In 2014 IEEE Frontiers in Education Conference (FIE) Proceedings (pp. 1-6). IEEE.
94. "Using design thinking tools to promote innovation in engineering students." Suh, J. M., Peixoto, N., Seshaiyer, P., Lee, K.H. Suh, D., & Jung, Y. *Proceedings of the Joint International Conference on Engineering Education & International Conference on Information Technology* (2014).

95. "Sequencing The Mathematical Learning Progression Through Vertical Articulation During Lesson Study", In Oesterle, S., Nicol, C., Liljedahl, P., & Allan, D. (Eds.) *Proceedings of the Joint Meeting of PME 38 and PME-NA 36*,Vol. 6, p. 238. Vancouver, Canada: PME (2014).

96. "Mapping teachers' understanding of the mathematical learning progression through vertical articulation during Lesson Study." Suh, J. M., & Seshaiyer, P. *Proceedings of the American Educational Research Association* Online Repository, Philadelphia, PA (2014).

97. "Technology Enhanced Problem Based Learning with Applications to Real-World Problems", P. Seshaiyer, B. Kwon and T. Stephens, *Proceedings of the ATCM*, Pages 1-12 (2013).

98. "Teacher Preparation in Developing 21st Century Workforce," M. Talaiver; C. Staudt; P. Seshaiyer; J. Malyn-Smith; B. Bracey-Sutton; J. Suh, *Proceedings of the Society for Information Technology & Teacher Education International Conference* Vol.1 pp. 90–94 (2013).

99. "Fostering strategic competence for teachers through modeling rational numbers problem tasks." Suh, J.M., Seshaiyer, P., Leong, K., Freeman, P., Corcoran, M., Meints, K., & Wills, T.In Van Zoest, L. R., Lo, J.H., & Kratky, J.L.(Eds.). *Proc. of the 34th Annual Meeting of the North American Chapter of the International Group for the PME*. (pp. 474-481). Kalamazoo, MI (2012).

100. "Mathematics specialists "Noticing": Identifying the role of "Noticing" in the development of strategic competence." Leong, K., Suh, J. M., Freeman, P., Seshaiyer, P. In Wiest, L. R., & Lamberg, T. (Eds.). *Proceedings of the 34th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (2012).

101. "Computational Methods for Multi-physics Applications with Fluid-structure Interaction," K. Nong, E. Aulisa, S. Garcia, E. Swim and P. Seshaiyer, *Proc. of COMSOL Conf.,* Boston (2010).

102. "Numerical methods for unsteady blood flow interaction with nonlinear viscoelastic arterial vessel wall", F. Mihai, I. Youn and P. Seshaiyer. *Proc.. of the 2012 International Conference on Computational and Mathematical Methods in Science& Engineering*, vol4, pp 1462 – 1472 (2012).

103. "Distributed Computational Methods for Coupled Multi-physics Applications", E. Aulisa, S. Manservisi, P. Seshaiyer, A. Idesman. *Proceedings of the 2008 International Symposium on Distributed Computing and Applications for Business Engg. and Science*, vol 1, pp 8-15 (2008).

104. "Computational modeling of highly flexible membrane wings in micro air vehicles", L. Ferguson, E. Aulisa, P. Seshaiyer and R. Gordnier, *Proc. of the 49th AIAA Structures, Structural Dynamics, and Materials Conference, AIAA* Paper 1661, pp 761-781 (2006)

105. "Nonlinear Models for Biologically-Inspired Elastic Membrane Wings", E. Swim and P. Seshaiyer, *Proceedings of the 49th American Institute of Aeronautics and Astronautics (AIAA) Structures, Structural Dynamics, and Materials Conference*, AIAA Paper 1500, pp 1-12 (2008).

106. "Applications of non-conforming finite element methods to fluid dynamics", E. Aulisa, S. Manservisi and P. Seshaiyer, *Proc. of the European Congress on Computational Methods in Applied Sciences and Engineering*, P. Neittaanmaki et. al. (Eds.), Vol 2, pp 1-17 (2004).

107. "A non-conforming computational methodology for modeling coupled problems", E. Aulisa, S. Manservisi and P. Seshaiyer, *Proc. of World Congress of Nonlinear Analysts*, pp1734-1745 (2004).

108. "Contact constraints and saccular aneurysms", J. D. Humphrey and P. Seshaiyer, In the *Proceedings of BED*, Vol 50, pp 687-688 (2001).

AWARDS/HONORS/RECOGNITIONS

1. *Honorary Doctorate,* Vrije Universiteit Brussel for outstanding contribution to scientific excellence and social impact (2019)
2. *STEM Champion of the Year Award*, selected by the WashingtonExec STEM Council for having achieved great levels of success in the STEM fields and for having a sense of responsibility to nurture and inspire younger minds through service, mentorship and outreach. (2019)
3. Selected by the NSF for the "Reskilling America's STEM Workforce", Alexandria (2018).
4. *2018 Programs that Work Award* for exemplary mathematics, science, and integrated science, technology, engineering, and mathematics (STEM) programs for which there is evidence of a positive impact on STUDENT learning.
5. *2018 Programs that Work Award* for exemplary mathematics, science, and integrated science, technology, engineering, and mathematics (STEM) programs for which there is evidence of a positive impact on TEACHER initiatives.
6. Research with Miguel Castro Rivera (Undergraduate Research Student) and Pradyuta Padmanabhan (High School student) funded by NSF was selected by *Council of Undergraduate Research (CUR) Posters on the Hill* that will honor the research of 60 projects from more than 600 applicants to the annual Posters on Capitol Hill, Washington DC (2018)
7. Selected by the US Ambassador & Chair, African Mission for directing "STEM for Africa" (2017)
8. Selected for "The White House Conference on Inclusive STEM Education" (2016)
9. Research with Alexander Baez, Kathleen McClane (Undergraduate Research Students) and Pradyuta Padmanabhan (High School student) funded by NSF was selected by *Council of Undergraduate Research (CUR) Posters on the Hill* that will honor the research of 60 projects from more than 600 applicants to the annual Posters on Capitol Hill, Washington DC (2016)
10. *2016 Programs that Work Award* for exemplary mathematics, science, and integrated science, technology, engineering, and mathematics (STEM) programs for which there is evidence of a positive impact on student or teacher learning.
11. 2016 Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) Nominee.
12. 2016 Outstanding Faculty Award Nominee, State Council for Higher Education in Virginia.
13. Received a *Letter of Commendation* for outstanding contributions to research and teaching from the Governor of Virginia Terry McAuliffe (2015)
14. 2015 Outstanding Faculty Award Nominee, State Council for Higher Education in Virginia.
15. 2015 *Programs that Work Award* for exemplary mathematics, science, and integrated science, technology, engineering, and mathematics (STEM) programs for which there is evidence of a positive impact on student or teacher learning.
16. 2015 Nominee for David J. King Award given to a faculty member who has made longstanding, significant contributions to the overall educational excellence of the University.
17. Research with Alexandra Zeller (*Undergraduate Student*) funded by NSF was selected by the *Council of Undergraduate Research (CUR) Posters on the Hill* that honored the research achievements of 60 projects from more than 600 applicants on Capitol Hill, Washington DC (2014)
18. 2014 Nominee for Outstanding Faculty Award, State Council for Higher Education in Virginia.
19. 2014 Alumni Faculty of the Year, George Mason University Alumni Association Award.
20. 2014 *PBS Learning Media Educational* Videos, Featured as one of the Educators in the PBS Learning Media distributed across the world
21. 2013 Office of Student Scholarship, Creative Activities, and Research (OSCAR) awards *Mentoring Excellence Award*

22. 2013 Elected to the National Academy of Science, US National Commission for Mathematics Instruction. Featured in Mason News http://newsdesk.gmu.edu/2013/08/seshaiyer-named-to-national-commission-for-mathematics-instruction/
23. 2013 Elected as one of the councilors for Mathematics and Computer Science for the Council on Undergraduate Research.
24. 2014 and 2013 Selected from over 600 applicants to be on the LEGO Education Advisory Panel by LEGO Education USA.
25. 2013 *Using Collaborative Learning* Video, Featured as one of the George Mason Faculty member as a part of the university video
26. 2013 Featured in Washington Executive, http://www.washingtonexec.com/2013/08/gmus-padmanabhan-seshaiyer-on-the-schools-stem-accelerator-program-long-term-plans-for-stem-education-and-mentoring-high-school-stem-students/
27. 2012 TEDx Speaker, *Mathematics, A Multi-disciplinary Universal Language*, George Mason University (May 2012)
28. 2011 *College of Science Teaching Award*, First recipient of the teaching award in Mathematical Sciences that is given to College of Science (COS) faculty members who are outstanding teachers or mentors and/or have made major contributions to COS educational activities (Nov 2011)
29. 2011 *Fall Convocation Speaker*, One of the three faculty members selected to keynote presenters by the President to showcase the State of Research at GMU (Sept 2011)
30. 2013, 2012, 2011 International Mathematics Union *VLP* in Nelson Mandela African Institute for Science and Technology, Selected by the U.S. National Committee for Mathematics and the National Academy of Sciences, August 2011 (http://news.gmu.edu/articles/7711)
31. 2010-2011 University Wide *GMU Teaching Excellence Award* Winner for being an outstanding educator and contributions to General Education, Center for Teaching Excellence, April 2011 (http://cte.gmu.edu/Downloads/CTE_Spring11_Newsletter.pdf)
32. Selected as one of the mathematicians for the *Mathematicians in Mathematics Education Workshop* to study the Common Core Standards (April 2011)
33. Charter Member, One of the signing members of the official Charter of The Honor Society of Phi Kappa Phi, George Mason University (2011)
34. QEP (Quality Enhancement Program) *Students as Scholars* Video (http://qep.gmu.edu), Featured as one of the George Mason Faculty member as a part of the university video (2011)
35. Featured in *SPAN Magazine* (Jan/Feb 2011), a bimonthly general interest magazine on India and the United States (http://span.state.gov/jan-feb2011/eng/44-47-Science-Fair.html)
36. Featured in the GMU College of Science *Periodic Elements* twice in 2010 (Fall and Spring)
37. Featured in *Broadside* as a featured speaker in the GMU *Cultural Fusions* Program (2010)
38. Featured in *Mason Media* in 2010 (http://mediablog.gmu.edu/2010/09/mason-professor-helps-ignite-passion-for-science-and-engineering)
39. Featured in the George Mason University Office of Sponsored Programs Newsletter in 2009 (http://research.gmu.edu/OSP/docs/pdfdocuments/OSP_Newsletter_November_2009.pdf)
40. USA Science and Engineering Festival *Nifty-Fifty Speaker*: Selected to be a part of a select group of fifty noted professionals who were chosen from over 500 submissions from 4450 partner organizations since 2010 (http://www.usasciencefestival.org/schoolprograms/niftyfifty.html)
41. *Program that Works* Award from the Virginia Coalition of Mathematics and Sciences for directing IMPACT: Improving Mathematical Practices for Algebraic Connections and Technology, for being an exemplary program in the State with positive impact teacher learning (2010)
42. Received a *Letter of Commendation* for outstanding contributions to research and teaching from the Governor of Virginia Robert McDonnell (2010)
43. Research with Minerva Venuti (*Undergraduate Apprenticeship Program* Student) and Kris Kappemeyer (K-12 Teacher) was selected by the Council of Undergraduate Research (CUR)

Posters on the Hill that honored the research achievements of 75 projects from more than 50 colleges and universities nationwide at its annual Posters on Capitol Hill, Washington DC(2010)

44. Two of the undergraduate students mentored have won the Best-Paper award in the *MAA Undergraduate Poster competition* at the Joint Mathematics Meetings (2009, 2010)
45. High School Project mentored won Northern VA grand prize winner and qualified for the Prestigious Intel Science and Engineering Fair Competition (2009)
46. Brought recognition to GMU by establishing the first time REU (Research Experiences Program for Undergraduates) SITE and article published on this by the GMU – OSP Newsletter (2009)
47. Association of Women in Mathematics (AWM) Teacher partnership program national newsletter (July-August 2008) featured the partnership between Dr. Seshaiyer and Ms. Kris Kappmeyer as a model faculty-teacher partnership for others to follow.
48. George Mason University Gazette Article published on the ACT NOW summer No-child left behind – Improving Teacher Quality Program (2008)
49. Mason Dream Catcher's Mentorship Program highlighted in "Mason in the News Program" (2009)
50. One of the undergraduate students mentored won the Gold Water Scholarship (2007).
51. Provost recognition for maintaining high scores on the student evaluations (2008, 2009, 2010)
52. ASEE Summer Faculty Fellowship for performing research at the AFRL-WPAFB, Dayton, Ohio. Awarded by the American Society for Engineering Education twice (2005, 2006).
53. President's Excellence Award in Teaching. Awarded by Texas Tech University (2005).
54. Outstanding Faculty Member, Selected as one of the five best professors for teaching excellence. Awarded by the Mortar Board and ODK Societies, Texas Tech University (2004).
55. SIAM Graduate Professor of the Year, Mathematics and Statistics, TTU (2004).
56. Phi Kappa Phi, National Honor Society, Inducted into the Texas Tech Chapter (2004).
57. Who's Who in America, Biographical profile to be included in the 59th edition (2004).
58. Member of the Teaching Academy, Texas Tech University (2003).
59. Alumni Association New Faculty Award, Texas Tech University (2003).
60. SIAM Graduate Professor of the Year, Mathematics and Statistics, TTU (2002).
61. Tribute to Teachers Outstanding Teacher Award, College of Arts & Sciences and College of Education, Texas Tech University (2002).
62. Texas Project NExT Fellowship (New Experiences in Teaching), one of two faculty, selected for the improvement of undergraduate teaching/research in the State of Texas (2001).
63. Travel Grant, for participating in the Workshop on Preservation and Stability. Supported in part by the National Science Foundation and Colorado State University (2001).
64. ExxonMobil Project NExT Fellowship (New Experiences in Teaching), one of 72 assistant professors in USA selected for the improvement of undergraduate teaching and research (2000).
65. Research Associateship, for performing research in computational biomechanics. Supported in part by National Institutes of Health Heart, Lung and Blood Institute (1998).
66. Travel Grant, for presenting research at High Order Finite Element Methods conference, Germany. Supported in part by UMBC & Physikzentrum Bad Honnef, Germany (1998).
67. Research Fellowship, for research on non-conforming hp finite element methods. Supported in part by Air Force Office of Scientific Research and National Science Foundation (1998, 1997).
68. Research Fellowship, for research in randomized play-the-winner adaptive model, adaptive design and simulation for clinical trials. Supported in part by National Institute of Diabetes & Digestive and Kidney Diseases (1997, 1996).
69. The Graduate Student Research Award, for outstanding research presentation in Mathematics by a graduate student at the 18th Annual Graduate Research Day in Maryland (1996).
70. Directive Research Initiative Fellowship, for research in finite element interface problems. Supported in part by Air Force Office of Scientific Research, USAF (1995).

SCIENTIFIC RESEARCH, EDUCATION AND TRAINING GRANTS

GRANTS AWARDED (George Mason University, 2007 - Present):

Awarded over **8 Million** Dollars in External Funding (2007 – Current) as a PI or Co-PI.

1. Collaborative Research: RoL: FELS: Workshop - Rules of Life in the Context of Future Mathematical Sciences, National Science Foundation, $80, 201 (2018 – 2019).
2. Investigating Mathematical Modeling, Experiential Learning and Research through Professional Development and an Integrated Online Network for Elementary Teachers, National Science Foundation, $48,933 (2018 – 2019).
3. FOCUS Academy: Females of Color Underrepresented in STEM, Business Women's Giving Circle, $20,000 (2018 – 2019).
4. Multidisciplinary Problem Solving in STEAM, Global Discovery Grants, Mason Global Education Office, $18,000 (2018 – 2019).
5. Program SPARK STEM: Optimizing STEM Learning through Mathematical and Scientific Modeling through Project-based Learning (PBL), State Council for Higher Education in Virginia, $126,000 (2017 - 2018).
6. Program TRANSITIONS: Transforming Mathematics Instruction Through Mathematical Modeling, Algebraic Thinking and Proportional Reasoning: Teaching and Assessing Virginia's 2009 Grades 5-9 Mathematics SOL, Virginia Department of Education, $712,212, PI (2015-2017)
7. The RADSS program (Rural and Diverse Student Scholars), National Science Foundation, S-STEM Grant, $600,000, Co-PI (2016 – 2020).
8. Use of Technology to Manage Stimulus Cues and Reduce Drug Relapse: A STEAM-H initiative, Provost Multidisciplinary Research Award, GMU $50, 000, Co-PI (2015 – 2016)
9. Project PROGRESS: Promoting Renewable energy research On the Grid to create Responsible and Engaged STEM workforce in Solar Sustainability across the Commonwealth, Dominion Foundation, $40, 000, PI (2015 – 2016)
10. SIAM Mid-Atlantic Student Conference Grant, Computational Mathematics Program, National Science Foundation, $17, 000. PI (2015- 2016).
11. Project FOCUS: Females of Color Underrepresented in STEM, Business Women's Giving Circle Fund, $20, 000, PI (2015-2016).
12. Project DICE: Design Thinking, Innovation, Creativity and Entrepreneurship, Office of Student Scholarship, Creative Activities, and Research (OSCAR), $12, 000, PI (2015-2016)
13. Engaging incoming STEM majors through preparatory camps to improve freshmen academic performance and retention in STEM, 4-VA Consortium Grant, $19, 700. PI (2014 – 2015).
14. Investigating phage ecology: an interdisciplinary summer research experience for undergraduate and Governor's School high school students, 4-VA Consortium Grant, $18, 950. PI (2014 – 2015).
15. Calculus and 3D-Printing, Mathematical Sciences, 4-VA Consortium Grant, $20, 000. Co-PI (2014- 2015)
16. Program IMMERSION: Integrating Mathematical Modeling, Experiential learning and Research through a Sustainable Infrastructure and an Online Network for teachers in the elementary grades, National Science Foundation, $1.4Million. PI (2014 - 2019).
17. "EXTREEMS-QED: Undergraduate Research in Computational and Data-Enabled Mathematics", National Science Foundation, $421, 885, Co-PI (2014 - 2018).
18. "Developing Rational Numbers and Proportional Reasoning through math models and performance based assessments: Teaching and Assessing Virginia's 2009 6-8 Mathematics Standards of

Learning", a Math Science Partnership (MSP), Virginia Department of Education (VDOE), $220,515. PI (2014-2015).

19. "Fluency and number sense through math models and performance based assessments: Teaching and Assessing Virginia's 2009 3-5 Mathematics Standards of Learning", a Math Science Partnership (MSP), Virginia Department of Education (VDOE), $208,935. PI (2014-2015).
20. "Developing Rational Numbers and Proportional Reasoning through math models and performance based assessments: Teaching and Assessing Virginia's 2009 6-8 Mathematics Standards of Learning", a Math Science Partnership (MSP) for Grades 6-8, Virginia Department of Education (VDOE), $246,696. PI (2013-2014).
21. "Building Number and Number Sense through math models and performance based assessments: Teaching and Assessing Virginia's 2009 K-2 Mathematics Standards of Learning", a Math Science Partnership (MSP) for Grades K-2, Virginia Department of Education (VDOE), $246,696. PI (2013-2014).
22. "Computational Mathematics, Modeling and Analysis of Biological, Bio-inspired and Engineering Systems", NSF and USAID Partnership for Enhanced Engagement in Research (PEER) with Nelson Mandela African Institution of Science and Technology, $60, 000, PI (2013 - 2014).
23. "Expeditions in Science Technology Engineering and Arts through Mathematics (ESTEAM)", a State Council for Higher Education in Virginia, $179,945, Co-PI (2013-2014).
24. "Advancing the Mentorship of Academic-Year Governor's School (AYGS) Student Research Across VA: Teacher Professional Development for the 19 VA AYGS at Front Royal", 4-VA Collaborative Grant, $28, 600, PI 2013 - 2014.
25. "STEM Boot Camp: Improving access by engaging incoming STEM majors", 4-VA Collaborative Grant, $23, 800, PI 2013 - 2014.
26. "REU: Research, Education and Training in Computational Mathematics and Nonlinear Dynamics of Biological, Bio-inspired and Engineering Systems", NSF, $333,809. PI (2011-2013)
27. "Sonia Kovalevsky Day", a Math outreach day for girls in mathematics for grades 7-12, Association of Women in Mathematics, $1795 Co-PI (2011) and $1950 Co-PI (2012).
28. "Math Modeling in Elementary School", a Math Science Partnership (MSP) for Grades K-2, Virginia Department of Education (VDOE), $215,997. PI (2012-2013).
29. "Math Modeling in Middle School", a Math Science Partnership (MSP) for Grades 6-8, Virginia Department of Education (VDOE), $222,040. PI (2012-2013).
30. "Virginia STEM Collaborative Nurturing Network to Enhance Content-focused Teaching (VA STEM CoNNECT)", a MSP for Grades 9-12, VDOE, $57,013. PI (2012-2013).
31. "Expeditions in Science Technology Engineering Education through Mathematics (ESTEEM)", a MSP for Grades 9-12, Virginia Department of Education, $175,000. PI (2011-2012).
32. "Center for Outreach in Mathematics Professional Learning and Educational Technology (COMPLETE)", a Mathematics Science Partnership Continuation for Grades K-3, Virginia Department of Education, $175,731. PI (2011-2012).
33. "Center for Outreach in Mathematics Professional Learning and Educational Technology (COMPLETE)", a Mathematics Science Partnership Continuation for Grades 7-8, Virginia Department of Education, $188,541. PI (2011-2012).
34. "Center for Excellence in Mathematics Professional Learning and Coaching in Northern Virginia for Grades K-3", Mathematics Science Partnership, Virginia Department of Education, $349,787. PI (2010-2011)
35. "Center for Excellence in Mathematics Professional Learning and Coaching in Northern Virginia for Grades 7-8", Mathematics Science Partnership, Virginia Department of Education, $350,181. PI (2010-2011)

36. "Mentoring Approaches to Sustainable Outreach Networks, Improving Mathematical Practices in Algebraic Connections and Technology in Mathematics (MASON IMPACT)", State Council of Higher Education for Virginia, $177,923. Co-PI (2010 – 2011)
37. "REU: Multidisciplinary REU in Computational Mathematics and Nonlinear Dynamics of Biological, Bio-inspired and Engineering Systems", National Science Foundation (REU) and Department of Defense (ASSURE), $180,000. PI (2009-2011)
38. "A Fluid-Structure Interaction Method for Patient-Specific Cardiovascular Modeling", A collaborative project with Carnegie Mellon University, NIH, $135,000. PI (2009-2011)
39. "Mathematical and computational modeling of fluid-structure-control interactions with multidisciplinary applications in science and engineering", Division of Mathematical Sciences, National Science Foundation, $108, 152. PI (2008 – 2010)
40. "Improving Mathematical Practices in Algebraic Connections and Technology in Mathematics (IMPACT)", State Council of Higher Education for Virginia, $168, 044. Co-PI (2009 – 2010)
41. "Algebraic Connections and Technology in Middle Grades Mathematics (ACT – Now)", State Council of Higher Education for Virginia, $73, 000. Co-PI (2008 – 2009).

GRANTS AWARDED (Texas Tech University, 2000 - 2007):

Awarded approximately **one Million** Dollars in Internal and External Funding during my tenure at Texas Tech University (2000 – 2007) years as a PI or Co-PI.

1. "Mathematical and Computational Modeling of Fluid-structure-control interactions with multidisciplinary applications in science and engineering", PI, Computational Mathematics, Division of Mathematical Sciences, National Science Foundation, $200, 464 (2006 - 2009).
2. "South Plains Mathematics Scholars", Co-PI, Division of Undergraduate Education, S-STEM: Scholarships in Science, Technology, Engineering and Mathematics, National Science Foundation, $571, 580 (2008 – 2010)
3. "Multidisciplinary Research Program in Computation and Control of Biological Systems", Texas Higher Education Coordinating Board, Advanced Research Program, $79, 000 (2006 - 2008)
4. "REU: Multidisciplinary Summer Undergraduate Research Program in Computation and Control of Biological and Biologically Inspired Systems", PI, Department of Defense (ASSURE) and National Science Foundation (REU), $170, 707 (2006 - 2007).
5. "AMS Epsilon Grant", PI, Texas Tech Summer Mathematics Academy, American Mathematical Society, $2,500 (2006).
6. "Non-conforming hp finite element methods for computational modeling of problems in science and engineering", PI, National Science Foundation, Computational Mathematics Program, Division of Mathematical Sciences, $90,000 (Aug 2002 - July 2005).
7. "Mini-symposium on Mathematical and Computational Modeling of Biological Systems", PI, Division of Mathematical Sciences, National Science Foundation, $20,000 (Sept 2003 - Aug 2004).
8. "Mini-symposium on Mathematical and Computational Modeling of Biological Systems", PI, Whitaker Foundation, $5,000 (Sept 2003 - Aug 2004).
9. "Mini-symposium on Mathematical and Computational Modeling of Biological Systems", PI, Texas Tech University, $2,750 (Sept 2003 - Aug 2004).
10. "Application of non-conforming hp finite element methods to problems in engineering mechanics", PI, Texas Tech University Research Enhancement Grant, $3,650 (Sept 2002 - Aug 2003).
11. "On the role of contact constraints of intracranial saccular aneurysms", PI, Texas Tech University Research Enhancement Grant, $3,750 (Sept 2001 - Aug 2002).

TALKS

International (Keynote / Invited Talks / Colloquium / Conference Presentations

1. Annual Mathematics Teachers Workshop, Singapore (June 2019)
2. Vrije Universiteit Brussels, Brussels, Belgium (April 2019)
3. The Mico International Math Teaching Summit, Kingston, Jamaica (March 2019)
4. Jamia Millia Islamia, Delhi, India (Nov 2018)
5. Gandhi Gram Rural Institute, Tamil Nadu, India (Nov 2018)
6. Moravian Teacher's Days, Suriname (Sept 2018)
7. Mathematics Teachers Conference, Antigua and Barbuda (Aug 2018)
8. Dublin City College, Ireland (Aug 2018)
9. Indo-US Workshop on Modeling Dynamics, Statistical Inference and Prediction of Infectious Diseases, Sri Sathya Sai Institute for Higher Learning (Aug 2018)
10. Competencies and Frameworks in Teaching Mathematics in K-12: An International Perspective, Sathya Sai Institute of Higher Learning (Aug 2018)
11. Organization of American States-ITEN Regional Seminar, Bahamas (June 2018)
12. Organization of American States-ITEN Regional Seminar, Belize (June 2018)
13. Annual Mathematics Teachers Workshop, Singapore (May 2018)
14. Organization of American States-ITEN Regional Seminar, Jamaica(May 2018)
15. Organization of American States-ITEN Regional Seminar, Panama (April 2018)
16. The Tenth International Conference on Science and Mathematics Education in Developing Countries, Myanmar (Nov 2017)
17. STEM for Africa, Tanzania (July 2017)
18. Mathematics Teachers Conference 2017, Mathematics Instruction: Goals, Tasks and Activities, Nanyang Technological University / National Institute of Education, Singapore (June 2017)
19. Redesigning Pedagogy International Conference, Education for the Future: Creativity, Innovation, Values, Singapore (June 2017)
20. SEMINARIO EN INNOVACIÓN ACADÉMICA PARA LA ENSEÑANZA – APRENDIZAJE DE LAS MATEMÁTICAS, Universidad Nacional de Colombia (May 2017)
21. Ministry of Education Science and Culture, Suriname (Feb 2017)
22. Innovation in Technologies Escuela International, Universidad Nacional de Colombia (Jan 2017)
23. The Ninth International Conference on Science and Mathematics Education in Developing Countries, Myanmar (Nov 2016)
24. University wide STEM Seminar, Universidad Nacional de Colombia (October 2016)
25. Grupo de Investigación en Biología Matemática y Computacional Seminar, BIOMAC – Research Group in Mathematical and Computational Biology, Universidad de los Andes (October 2016)
26. Departamento de Ingenieria Biomedica, Universidad de los Andes (October 2016)

27. BiomacThird International & Interdisciplinary Workshop on Mathematical Modeling, Ecology, Evolution and Dynamics of Dengue and Other Related Diseases (July 2016)
28. Fifth European Seminar on Computing, Pilsen, Czech Republic (June 2016)
29. The First Annual Basic Education – Science, Technology, Reading, Engineering, Arts, Mathematics and Innovation to engage the Next Generation Conference, Suriname (February 2016)
30. Public Speaker, The Eighth International Conference on Science and Mathematics Education in Developing Countries, Myanmar (December 2015)
31. Second International & Interdisciplinary Workshop on Mathematical Modeling, Ecology, Evolution and Dynamics of Dengue and Other Related Diseases (Aug 2015)
32. Nelson Mandela African Institute of Science and Technology STEM Week (July 2015)
33. Mathematics Society of the Philippines Annual Conference (May 2015)
34. Panama Summit, STEM Committee (April 2015)
35. Inter-American University of Puerto Rico, Bayamon Campus (Mar 2015)
36. Advanced Teacher Training Institute, Suriname, South America (Feb 2015)
37. Department of Mathematics Education, Seoul National University, South Korea (Jan 2015)
38. Department of Creative IT Engineering, POSTECH University, South Korea (Jan 2015)
39. National Academy of Science Arab American Frontiers Symposium, Muscat, Oman (Dec 2014)
40. Advanced Teacher Training College, Suriname, South America (November 2014)
41. The Seventh International Conference on Science and Mathematics Education in Developing Countries, Myanmar (November 2014)
42. Ministry of Education, Suriname, South America (July 2014)
43. Virtual educa, Training Teachers in the 21st century, Trinidad and Tobago (May 2014)
44. Mathematical Society of the Philippines (May 2014)
45. Department of Mathematics, University of the Philippines, Diliman (May 2014)
46. Department of Mathematics, Ateneo de Manila University (May 2014)
47. Department of Mathematics, De La Salle University (May 2014)
48. Cultivating Innovators in IT Convergence Workshop, Integrative Educational Initiatives and Multidisciplinary Research Environment, POSTECH University, Korea (January 2014)
49. Quantitative modeling of biological and engineering systems through STEM problem solving activities, SIAM Mini-symposium on Modeling Modules and Activities for Students, Joint Mathematics Meetings, Baltimore Convention Center (Jan 2014).
50. Inquiry-based problem solving strategies through interactive approaches for engaging students in mathematics, AMS Special Session on Communication of Mathematics via Interactive Activities, Joint Mathematics Meetings, Baltimore Convention Center (Jan 2014).
51. Fifth Asia Pacific Congress on Computational Mechanics (APCOM), Singapore (December 2013)
52. Asian Technology Conference in Mathematics and Technology in Mathematics Curriculum (ACTM/TIME), Indian Institute of Bombay, India (December 2013)
53. St. Xaviers's College, International Programme in Biology and Mathematics (December 2013)
54. Homi Bhabha Centre for Science Education, TIFR, India (December 2013)

55. Partnership for Enhanced and Engaged Research, A NSF-USAID workshop, Nelson Mandela African Institute for Science and Technology (September 2013)
56. The Sixth International Conference on Science and Mathematics Education in Developing Countries, Myanmar (November 2013)
57. The 2nd Eastern Africa Universities Mathematics Programme Conference (EAUMP 2012), Nelson Mandela African Institute of Science and Technology, Arusha, Tanzania (August 2012)
58. International Conference on Mathematical Modeling and Applications to Industrial Problems (MMIP 2011), National Institute of Technology, Calicut, India (March 2011)
59. The 9th World Congress on Computational Mechanics (WCCM2010), Mini-symposium on High Order Methods for Multi-scale Problems, Sydney, Australia (July 2010)
60. The Mathematics of Finite Elements and Applications (MAFELAP) International Conference, Mini-symposium on Cardiovascular Biomechanics, London (July 2009)
61. International Conference on Recent Trends in Computational Partial Differential Equations, Indian Institute of Technology, Bombay, India (December 2008)
62. International Symposium on Distributed Computing and Applications to Business, Engineering and Science, Dalian, China (July 2008)
63. International Conference on Spectral and High Order Methods, Chinese Academy of Sciences, Beijing, China (July 2007)
64. International Conference on Computational Methods in Continuum Mechanics, Anna University, Chennai, India (January 2006).
65. Finite Element Methods and applications to science and engineering, National Institute of Technology, Warangal, India (January 2006).
66. Applications of non-conforming finite element methods to fluid dynamics, European Congress on Computational Methods in Applied Sciences & Engineering, Jyvaskyla, Finland (July 2004).
67. Non-conforming finite element methods for non-matching grids tuned to parallel Implementation, Domain Decomposition 15, Berlin (July 2003).
68. FSI using Nonconforming Finite Element Methods, Domain Decomposition 15, Berlin (July 2003).
69. Stable non-conforming hp finite element methods for mixed elasticity problems, ICM 2002, Satellite Conference on Scientific Computing, Xian, China (August 2002).
70. Modeling elastic mechanics of brain aneurysms, Brain Aneurysm Research, Toronto (June 2002).
71. Non-conforming hp finite element methods for domain decomposition, Indian Institute of Technology-Bombay (March 2002).
72. Mortar domain decomposition techniques, Indian Institute of Technology - Madras (March 2002).
73. The hp mortar domain decomposition method for problems in fluid mechanics, Domain Decomposition Methods in Fluid Mechanics, University of Greenwich, (Sept 2001).
74. Non-conforming hp methods for Stokes Problems, Domain Decomposition Workshop, ETH-Zurich, Switzerland (June 2001).
75. Optimal approximation of singularities by non-conforming hp FEM, Bonn, Germany (Mar 1998).

National (Keynote / Invited Talks / Colloquium / Conference Presentations / Workshops)

APPLIED AND COMPUTATIONAL MATHEMATICS/UNDERGRADUATE RESEARCH/BIOMECHANICS

76. *Transforming Institutional Practices by Redesigning Educational Frameworks in Collegiate Mathematics*, 31st International Conference on Technology in Collegiate Mathematics (ICTCM), Scottsdale, AZ (Mar 2019)
77. *Mathematical Science Research Institute,* Critical Issues in Mathematics Education, Berkeley, California (Mar 2019)
78. *SIAM Computational Science and Engineering Meeting,* Spokane, Washington (Feb 2019)
79. *7th University Internationalization Seminar, Regional Strengthening and Intercontinental Connections,* Organization of American States, Washington DC (Feb 2019)
80. *STEMM Workshop*, National Academies of Science Engineering and Medicine, (Feb 2019)
81. *NSF Workshop: Best Practices In International Research For Graduate Students,* Alexandria, VA (Jan 2019)
82. *NSF Rules of Life Workshop,* Alexandria, VA (Nov 2018)
83. *40th Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME - NA)*, Greenville, South Carolina (Nov 2018)
84. *Virginia Consortium for Learning,* Charlottesville, Virginia (Oct 2018)
85. *Transforming Institutional Practices Through Innovative Approaches in Stem Teaching and Learning,* University of Texas at Arlington (Oct 2018)
86. *International Symposium on Biomathematics and Ecology Education and Research,* Arizona State University (Oct 2018)
87. *NSF Workshop on Reskilling the STEM Workforce,* Alexandria, VA (Sept 2019)
88. *Enhancing Undergraduate Education in Applied Mathematics through Multidisciplinary and Global Problem Solving,* Innovative Pedagogical Practices, Curricular Reforms and Teaching Resources in Applied Mathematics Education, SIAM Annual Meeting, Portland (July 2018)
89. *Understanding Bias in Computational Algorithms, Station 1 and MIT* (July 2018)
90. *NSF-CBMS Conference on Mathematical Biology, Howard University* (May 2018)
91. *Maryland Collegiate STEM Conference,* Howard Community College, MD (Apr 2018)
92. *Council on Undergraduate Research Posters on the Hill, Washington DC* (April 2018)
93. *Quantification of the Rupture Potential of Intracranial Saccular Aneurysms under Contact Constraints,* American Physical Society (APS) (March 2018).
94. *Mathematical modeling, analysis and simulation of multi-physics applications in biological, bio-inspired and engineering systems,* Lehigh University (October 2017)
95. *Research and Education using STEM based approaches for modeling, analysis and simulation of biological, bio-inspired and engineering systems,* Univ. of Illinois Urbana Champaign (Sept 2017).
96. *Computational modeling, analysis and simulation of coupled multi-physics problems with applications to biological and bio-inspired systems,* Brown University, Providence (May 2017)
97. *Transforming institutional practices through interdisciplinary approaches to problem solving in STEM,* Montgomery Community College, MD (April 2017).

98. *Mathematical modeling, analysis and simulation of biological and bio-inspired systems,* 2017 Regional Undergraduate Math Research Conference, Towson University (April, 2017)

99. *Mathematics and the Spread of the Zika Virus,* Howard Community College, MD (Feb 2017).

100. *MOCK REU Panel Session,* Council on Undergraduate Research CUR Dialogues (Feb 2017).

101. *Non-linear dynamics and analysis of Intracranial Saccular Aneurysms with growth and remodeling,* AMS Contributed Paper, Math Applied to the Physical Sciences, JMM (Jan 2017)

102. *Mathematical modeling, analysis and computation of the influence of preventive measures on the spread of the Zika Virus.* AMS Contributed Paper Session on Ordinary Differential Equations Joint Mathematics Meetings (Jan 2017)

103. *Engaging the next generation STEM (Science, Technology, Engineering and Mathematics) workforce through computational mathematics for solving real-world problems,* Howard University*, DC* (Nov 2016).

104. *Opportunities for collaboration on sustainable infrastructure & Mathematical Sciences Innovation Incubator,* SIAM Mathematics for Planet Earth Conference, Philadelphia, PA (Oct 2016)

105. *Modeling, Computation and simulation of non-linear soft-tissue interaction with flow dynamics with application to biological systems, International Conference on Computational Methods ,* ICCM2016, University of California, Berkeley, CA (Aug 2016).

106. *Implementation of the Parareal Algorithm to Optimize Nanoparticle Transport in Porous Media Simulation, International Conference on Computational Methods,* ICCM2016, University of California, Berkeley, CA (Aug 2016).

107. *Modeling, Analysis and Simulation of Multiphysics problems with applications,* Mathematical Theoretical Biological Institute, Arizona State University (July 2016).

108. *Multidisciplinary Research, Training and Education in Modeling, Analysis and Simulation of biological, bio-inspired and engineering systems,* Johns Hopkins University (Feb 2016).

109. *Multidisciplinary research in Mathematical Modeling, Analysis and Simulation of biological and bio-inspired systems*, Krasnow Institute, George Mason University (Feb 2016)

110. *Engaging students in undergraduate research and research training programs through NSF Research and Research Training Grant Opportunities in Mathematics*, Curriculum on Undergraduate Research, CUR Dialogues, Washington DC (Feb 2016)

111. *Multidisciplinary research in Mathematical Modeling, Analysis and Simulation of biological, bio-inspired and engineering systems*, ASPIRE Conference, Florida Gulf Coast University (Jan 2016)

112. *Enhancing Groundwater Quality Through Computational Modeling and Simulation to Optimize Transport and Interaction Parameters in Porous Media*, 13th US National Congress on Computational Mechanics, San Diego (July 2015)

113. *A High-order, Space-time formulation for non-linear structures with applications to coupled Multiphysics applications*, 13th USNCCM, San Diego (July 2015)

114. *TPSE: Enhancing the Undergrad Experience,* UT Austin (June 2014).

115. *International STEM Outreach in Developing Countries*, Princeton University (June 2014)

116. *Building STEM capacity in Tanzania through PEER: Computational Mathematics, Modeling and Analysis of Biological, Bio-inspired and Engineering Systems,* US Joint Services & OSD Africa Technical Exchange Meeting, Department of Defense (May 2014)

117. *Building STEM capacity in Tanzania through PEER collaboration,* USAID PEER Science Speakers Series (April 2014)

118. *Transforming Practice through Undergraduate Research Experiences*, Undergraduate research session, Spring Eastern AMS Sectional Meeting, Baltimore, Maryland (March 2014).

119. Enhancing research and pedagogical practices through multidisciplinary quantitative modeling in Science and Technology to increase global STEM Capacity, Invited presentation to the State Department, International Programs (Feb 2014)

120. Multidisciplinary undergraduate research in STEM, The Sixth International Symposium on. Biomathematics and Ecology: Education and Research (October 2013)

121. Teacher Preparation in Developing 21st Century Workforce, SITE (March 2013)

122. Best Practices for Introducing Undergraduate Students to Computational and Interdisciplinary Research, Minisymposium SIAM Annual Meeting (July 2012)

123. Transforming a Campus Culture by Creating a Faculty-Supportive Environment for Undergraduate Research and Creative Activities, CUR-REU Conference (Oct 2011)

124. *Multidisciplinary undergraduate research in mathematical sciences with applications to real world problems in biological, industrial and engineering systems,* Honors College Colloquium, George Mason University, Virginia (Oct 2011).

125. *Research Experiences for Undergraduates in mathematical sciences with applications to biological, bio-inspired and engineering systems,* Mathematics Colloquium*,* Hampden-Sydney College, Virginia (Oct 2011).

126. *Applications of differential equations for fluid-structure interaction problems in biological systems,* Special Session on Applications of Difference and Differential Equations to Biology, Fall Southeastern Section Meeting, (Sept 2011).

127. *Multidisciplinary research in mathematical sciences with applications to* STEM, Fall Convocation, George Mason University, (Sept 2011).

128. *Research, Education and Training in Computational Mathematics and Nonlinear Dynamics of Biological, Bio-inspired and Engineering Systems*, Math Colloquium, Towson Univ (April 2011)

129. Project NExT panel discussion about "*interdisciplinary collaborations for research and teaching"*, Invited Panelist and Speaker, Joint Mathematics Meetings (January 2011).

130. Special Bio-SIGMAA Session on "Trends in Undergraduate Mathematical Biology Education", *Transformative Research and Training in biological and bio-inspired systems in undergraduate mathematics*, Joint Mathematics Meetings, New Orleans, Louisiana (January 2011).

131. Special Session on "Numerical Methods for Solving Partial Differential Equations in Practice", *Numerical Methods for Multi-physics Applications with Fluid-structure Interaction*, 2010 Fall Southeastern Section Meeting, Richmond, Virginia (November 2010).

132. *Coupled finite element methods for fluid-structure interaction problems*, FEM2010, 10th Int. Workshop on Finite Elements for Microwave Engineering, New Hampshire (Oct 2010).

133. *Computational Methods for Soft-tissue Bio-mechanics*, Bioeng. Seminar, GMU (May 2010).

134. *Interdisciplinary undergraduate research in mathematical sciences,* Mathematics Colloquium, Florida Gulf Coast University (April 2010).

135. *Undergraduate research in mathematical sciences with multidisciplinary applications to biological, bio-inspired and engineering systems*, Math Colloquium, Hood College (March 2010).

136. *Mathematical, Computational and Experimental Methods for Soft-tissue Mechanics*, ICES Seminar, Carnegie Mellon University (February 2010).

137. MAA Special Session "Experiences that Enrich the Education of Mathematics Majors", *Enhancing teaching and learning of undergraduate mathematics majors through transformative research and training in biological and bio-inspired systems*, JMM, San Francisco (Jan 2010).

138. *Multidisciplinary undergraduate research in mathematical modeling of biological systems*, SIAM Applied Mathematics Lecture Series, Shippensburg University (October, 2009).

139. AMS Special Session at AMS Sectional Meeting on "*Mathematical progress and challenges for biological materials*", Raleigh, NC (April 2009).

140. AMS Special Session on "*Recent Advances in Mathematical Modeling in Medicine*", Joint Mathematics Meetings, Washington, DC (January 2009).

141. AMS Special Session on "*Mathematics of Computation*", Joint Mathematics Meetings, Washington, DC (January 2009).

142. *Mathematical modeling, analysis and computation of biological applications*, Department of Mathematics, James Madison University (November 2008).

143. *Multidisciplinary research in computational mathematics and nonlinear dynamics of biological, bio-inspired and engineering systems*, Mathematics, Computer Science and Physics Conversation Series, Roanoke College (November 2008)

144. *Stability analysis of Fluid-structure interaction for a non-linear beam*, World Congress of Nonlinear Analysts, Orlando, Florida (July 2008)

145. *Multilevel computational methodologies for solving fluid-structure interactions with applications to biological and bio-inspired systems*, Applied Mathematics Colloquium, Department of Mathematics, United States Naval Academy (April 2008)

146. *Mathematical Modeling and Simulation of Biological Arterial Wall-Flow Interaction,* AMS Session on Numerical Analysis, I, Joint Mathematics Meeting, San Diego (January 2008)

147. *Multidisciplinary research and training for enhancing teaching and learning of undergraduate mathematics*, MAA General Contributed Paper, VII, JMM, San Diego (January 2008)

148. *A Computational Domain Decomposition Approach for Solving Coupled Flow-Structure-Thermal Interactions*, Seventh Mississippi State – University of Alabama Conference on Differential Equations and Computational Simulations (November 2007)

149. Finite *Difference Methods for Coupled Flow Interaction Transport Models*, Seventh Mississippi State – University of Alabama Conference on Differential Equations and Computational Simulations (November 2007)

150. *Computational modeling and dynamics of micro air vehicles*, Computational and Data Sciences Colloquium, George Mason University (November 2007)

151. *Mathematical and Computational modeling of biological and bio-inspired systems*, Applied Mathematics Seminar, George Washington University (October 2007)

152. *A multilevel computational approach for solving coupled fluid-structure interactions for biological and bio-inspired applications*, Department of Mathematics and Statistics, University of Maryland, Baltimore County (October 2007)

153. *Modeling, Analysis and Simulation of Coupled Problems in Science and Engineering*, Applied & Computational Mathematics Seminar Series, George Mason University (September 2007)

154. *Multilevel computational methodology for fluid-structure interaction problems,* Fourth M.I.T. Conference on Computational Fluid and Solid Mechanics (June 2007)

155. *Mathematical and Computational modeling of coupled problems with multidisciplinary applications in science and engineering*, Department of Mathematical Sciences Colloquium, George Mason University (November 2006).

156. *A Multilevel computational methodology for modeling coupled problems in science and engineering*, Department of Mathematics, University of Texas at San Antonio (Nov 2006).

157. *Multi-physics coupled solution methodology via computational mathematics - Theory and Applications*, Computer and Mathematical Sciences, U. of Houston-Downtown (Nov 2006).

158. *Computational modeling of coupled membrane-beam flexible wings for Micro Air Vehicles*, Computational Science Division, Air Force Research Labs, Dayton (August 2006).

159. *A computational methodology for solving coupled problems in science and engineering*, Dept. of Mathematics & Statistics, Air Force Institute of Technology (March 2006).

160. *A multilevel computational methodology for modeling coupled problems in science and engineering*, Mechanical Engineering, University of Kansas, Lawrence (November 2005).

161. *Computational Structural Modeling of Micro Air Vehicles*, Computational Science Division, Air Force Research Labs, Dayton (August 2005).

162. *A computational multilevel multigrid approach for solving flow structure applications tuned to parallel implementation*, Int. Conf. on Structural Stability and Dynamics, Florida (June 2005).

163. *Computational biomechanics of aneurysms*, Dept. of Math, Univ. of Houston (April 2005).

164. *On the characterization of hyperelastic materials in soft-tissue mechanics*, AMS Sectional Meeting, Lubbock (April 2005).

165. *Numerical characterization of hyperelastic membranes in soft-tissue mechanics*, SIAM Conference on the Life Sciences, Oregon (July 2004).

166. *Nonlinear dynamic instability in soft-tissue mechanics,* Fourth World Congress of Nonlinear Analysts, Orlando (July 2004).

167. *A non-conforming computational methodology for modeling coupled problems*, Fourth World Congress of Nonlinear Analysts, Orlando (July 2004).

168. *Data Non-uniformity Detection & Alleviation, Damage Documentation*, Dallas (Mar 2003).

169. *A mortar finite element method for fluid-structure interaction problems*, 7th U.S. National Congress on Computational Mechanics, New Mexico (July 2003).

170. hp mortar finite element methods for non-matching grids tuned to parallel implementation, 7th U.S. National Congress on Computational Mechanics, Sandia, New Mexico (July 2003).

171. *Non-conforming computational methods for mixed-elasticity problems*, Finite Element Rodeo, University of Houston (March 2003).

172. *On the Mortar Finite Element Method, MAA* Texas Section, Mesquite (April 2002).

173. *Sub-domain characterization of hyperelastic membranes*, Continuum Mechanics and Soft Tissue Modeling, SIAM Life Sciences Meeting, Boston (March 2002).

174. *A non-conforming approach to submeshing*, Finite Element Rodeo, Texas A & M University, College Station (March 2002).

175. *Non-conforming finite element methods*, Department of Mathematics, Southern Methodist University, Dallas (November 2001).

176. *A non-conforming hp finite element method for submeshing*, AMS Fall Southeastern Sectional Meeting, University of Tennessee, Chattanooga (September 2001).

177. *Non-conforming hp mortar finite element methods for Stokes Problem*, AMS Spring Sectional Meetings, University of Nevada, Las Vegas (April 2001).

178. *A sub-domain inverse FE characterization of hyperelastic membranes including soft tissues*, Air Force Institute of Technology, Wright Patterson Airforce Base (March 2001).

179. *Non-conforming hp mortar finite element methods, p and hp Finite Element Methods: Mathematics and Engineering Practice*, Washington University (June 2000).

180. *Sub-domain inverse finite element methods*, FE Circus/Rodeo, UT Austin (March 2000).

181. *Characterization of material properties of Saccular Aneurysms*, 18th Annual Houston Conference on Biomedical Engineering Research, University of Houston (February 2000).

182. *Convergence and stability estimates for mortar finite element methods*, Department of Mathematics, Texas A&M University (November 1999).

183. *A sub-domain inverse finite element characterization for hyperelastic membranes*, 5th U.S. National Congress on Computational Mechanics, Univ. of Colorado Boulder (August 1999).

184. *Non-conforming hp finite element methods*, Dept. of Mathematics, Texas A&M (April 1999).

185. *Optimal convergence rates of hp FEM for second-order elliptic problems*, Finite Element Rodeo, University of Houston (March 1999).

186. *hp submeshing via non-conforming finite element methods*, Department of Mechanical Engineering, State University of New York, Stony Brook (March 1998).

187. *Convergence results for non-conforming hp finite element methods*, Department of Mathematics, United States Naval Academy, Annapolis (February 1998).

188. *Mortar Finite element methods and its variants*, Department of Mathematics and Statistics, University of Maryland, Baltimore County (February 1998).

189. *Sipe consolidation in tire design*, 4th Industrial Mathematics Modeling Workshop, North Carolina State University, Raleigh (August 1997).

190. *Convergence results for the mortar finite element method*, Finite Element Circus, New York University, New York (April 1997).

191. *Uniform hp estimates for partitioned domains*, Spring Eastern Sectional Meeting of the AMS, University of Maryland, College Park (April 1997).

192. *The finite element interface method*, Graduate Student Teaching Seminar, University of Maryland, Baltimore County (November 1996).

MATHEMATICS AND STEM EDUCATION/PROFESSIONAL DEVELOPMENT/K-12 OUTREACH

193. *Leadership for Global Problem Solving*, Women in Executive Leadership Conference, International Development Institute, Fairfax, VA (April 2019)

194. *The M in STEM, X-STEM Speaker,* USA Science and Engineering Festival, Washington DC (March 2019)

195. Mathematical Modeling with Cultural and Community Contexts in Elementary Grades, SIAM Conference on Applied Math Education, Portland (July 2018)

196. *Transforming Institutional Best Practices Through Inclusive Education and Global Engagement*, SIAM Conference on Applied Math Education, Portland (July 2018)

197. Grand Challenge Scholars Program, National Academy of Sciences, DC (Nov 2017)

198. Celebrating Diversity in Mathematical Sciences, SIAM Annual, Pittsburgh, PA (July 2017)

199. Enhancing pedagogical practices through learning by doing, Bayamon Region Mathematics Symposium, Inter American University, *VA* (May 2017).

200. *Mathematics and Marshmallow challenge,* DHS S & T Kids day, DC (April 2017).

201. Transforming Institutional Practice through Evidence Based Approaches in STEM, Howard Community College, MD (Feb 2017)

202. Engaging and retaining pre-college STEM students in Calculus through innovative pedagogical practices, MAA Session, Joint Mathematics Meetings (Jan 2017)

203. Sustainable Mathematics Partnerships between Public School Districts and Institution of Higher Education: The COMPLETE Center. AMS Session on Math Education, JMM (Jan 2017)

204. Enhancing Student Learning through Mathematical Modeling, VSUP Series (Nov 2016)

205. Enhancing Student Engagement in the 21st Century STEM Classroom Through Interdisciplinary Approaches to Problem solving, Arizona State University (Oct 2016).

206. Global STEM Challenges Program, Keynote, Edison High School, Alexandria, VA (Oct 2016)

207. *Reversing STEM avoidance and competencies for STEM majors,* STEM Freshmen Seminar, George Mason University (October 2016).

208. Opportunities for collaboration in Applied Mathematics Education, SIAM Applied Mathematics Conference, Philadelphia, PA (Sept 2016)

209. *Implementing Mathematical Modeling in Elementary Grades and Beyond,* SIAM Applied Mathematics Conference, Philadelphia, PA (Sept 2016)*Jobs and graduate research opportunities in STEM,* Mathematical Theoretical Biological Institute, Arizona State University (July 2016)

210. *STEM Retention and Mathematics Education Conference*, University-wide Talk, Inter American University of Puerto Rico, Bayamon (April 2016)

211. *Developing Mathematical Minds and Hearts,* Mathematics Education Meets Excellence Conference, National Council for Teachers in Mathematics, Atlantic City, New Jersey (Oct 2015)

212. *Making Sense of Mathematical Modeling in Grades 3-5: A Preliminary Framework*, NCSM Leadership in Mathematics Education Conference (April 2015)

213. *Transforming institutional practice through multidisciplinary research, training and education in STEM*, Whitaker STEM Center, Florida Gulf Coast University (Jan 2016)

214. The First Inaugural STEM Symposium, Speaker and Panelist for "*The Workforce of Tomorrow are your Kids Today*", Northern VA, Fairfax (March 2014)

215. Advanced Academic Programs Summer Institute K-10 on "*Designing Inquiry-based approaches in teaching Mathematics*", Fairfax County Gifted and Talented (Feb 2014)

216. Advanced Academic Programs Summer Institute K-10 on "*Designing Inquiry-based approaches in teaching Science*", Fairfax County Gifted and Talented (Feb 2014)

217. *Collaborative learning: Connect, Collaborate, Create,* Faculty Staff Day, GMU (Nov 2013).

218. *Mathematics Science Partnership*s, Presenter at MSP Washington DC (September 2013).

219. *Nurturing Inventive Thinkers through Teacher Professional Development,* Keynote Speaker, Sixth Annual STEM Learning Summit, Longwood University, VA (Jan 2013).

220. *The Virginia CONNECT project in the high school grades,* Session Speaker, STEM Connect Summit, Williamsburg, VA (Nov 2012).

221. *Effective Approaches to Problem Solving to Engage and Enhance Student Learning,* Keynote Speaker, PCTM 2012, Harrisburg, PA (Oct 2012).

222. *College Career and Awareness,* STEM Panelist*,* 2011 Homeschool College and Career Conference, Community College of Baltimore County-Catonsville (Nov 2011).

223. *Making real-world connections in teaching and learning through multiple representations*, Innovations in Teaching and Learning Conference, GMU, (Oct 2011).

224. Advanced Academic Programs Summer Institute K-10 on "*Designing Effective Problem Based Assessment in Mathematics*", Fairfax County Gifted and Talented (June 2011)

225. Special Session on "Centers for Teaching/Education/Outreach in Departments of Mathematics", *GMU COMPLETE: Center for Outreach in Mathematics Professional Learning and Educational Technology,* Joint Mathematics Meetings, New Orleans, Louisiana (Jan 2011).

226. *Beads, Bones and Rod: Let's do some counting*, SIAM Speaker, Shippensburg U (Nov 2010).

227. *Calculations, Arithmetic and Technology through the ages*, Keynote Banquet Speaker, Pennsylvania Council of Teachers in Mathematics (November 2010)

228. *Having fun with Mathematics*, PI-Day Speaker, Three outreach presentations to over 400 students, Fairhill Elementary School, Fairfax (April 2010).

229. *Improving Mathematical Practices to Prepare K-12 Teachers on Algebraic Connections and Technology*, Contributed Talk, Joint Mathematics Meetings, San Francisco (January 2010).

230. *K-8 Math Specialist Workshop*, Virginia Commonwealth Univ., Richmond, VA (March 2008)

231. *Calculation across cultures and history*, Center for Mathematics Education, GMU (Oct 2007)

232. *Teaching and Learning: Two sides of the same coin in education*, Educator Staff Development Presentation, Closing the Gaps Education Summit, Lubbock (November 2006)

233. *Mathematics through Games, Magic, Culture and History*, Student Presentation, Closing the Gaps Education Summit, Lubbock (November 2006)

234. *Mathematics through Magic and Culture*, Three outreach presentations to 518 students, Dunbar Middle School, Lubbock (November 2005).

235. *Innovative Mathematics Teaching Methods for bridging the gap in K-12 education*, Lubbock Educational Development Alliance, Lubbock (October 2005).

236. *What can you do with math and What can math do for you?* Two presentations, Ramirez Charter School, Lubbock (Oct 2005).

237. *On Careers in Mathematics*, AMS Sectional Meeting, Lubbock (April 2005).

REPORT, THESIS AND DISSERTATION DIRECTION

Graduate Students

Current – George Mason University

1. Erick Massawe (PhD), Nelson Mandela African Institute of Science and Technology
2. Maranya Mayengo (PhD), Nelson Mandela African Institute of Science and Technology
3. Manjurul Alam (PhD), George Mason University

Graduated - George Mason University

1. Wei Wang (MS), M.S., Mathematica, Investigating the influence of preventative measures to study the dynamics of the Zika Virus, George Mason University (Oct 2018)
2. Manal Bagdaish Ph.D, *Modeling, Analysis and Simulation of Saccular Aneurysm* (May 2017)
3. Maziar Raissi, Ph.D., *Multi-fidelity Stochastic Collocation Methods using Model Reduction Techniques* (July 2013)
4. Felix Mihai, Ph.D., *Computational Methods for Coupled Electromagnetic Fluid-Structure Interaction Models* (Dec 2012)
5. Veronica Egid, M.S, *On the Mathematical Modeling, Dynamics and Computation of Disease Combined with Social Processes* (Dec 2012)
6. Andrew Samuelson, Ph.D., *Analytical and Computational Methods for Fluid-structure interaction applications to aneurysms* (July 2011)
7. Marc Angulo, M.S., *Dynamic Compartmental Metal Flow Modeling* (July 2011)
8. Michael Garrity, M.S., *Computational modeling of nonlinear beam fluid interaction for modeling Micro Air Vehicles* (July 2011)
9. James Nong, M.S., *Optimal Control Problems in Fluid-structure interaction applications* (2010)

Graduated - Nelson Mandela African Institute of Science and Technology, Tanzania

10. Frank Venance, M.S., *Predicting levels of tobacco fumes concentration using a contaminant transport mathematical model coupled with disease dynamics: Case Study (Dec 2013)*
11. Henry Mgina, M.S., *Mathematical and computational modeling of predicting intrinsic growth rates of population in Tanzania* (Oct 2013)
12. Rigobert Charles Ngeleja, M.S., *Multi-Objective Optimization model for energy security with harmony to economic growth and environmental protection* (Oct 2013)
13. Selemen Ismail, M.S., *Conceptual understanding of computational round-off arithmetic and its impact in computations to enhance student learning in Tanzania: A case study of high school students in Hai and Moshi urban districts in Kilimanjaro Region* (Sept 2013)
14. Erick Alphonce Massawe, M.S., *Development of a sensor system to detect adulteration of petroleum products* (Sept 2013)

Graduated – Texas Tech University

15. Shelly McGee, Ph.D. Applied Mathematics, Dissertation: Computational modeling of chemical transport in flow structure interactions in porous media, 2007.
16. Wayne McGee, Ph.D. Applied Mathematics, Dissertation: h-p-k least squares finite element methodology and implementation for fluid-structure interactions, 2007.
17. Yu Su, M.S. Applied Mathematics, Thesis: A high-order space-time formulation for beam structural models and applications, 2007.
18. Simeon Losoha, M.S. Petroleum Engineering, Thesis: Math modeling, analysis and simulation of the productivity index for non-linear flow in porous media, with applications, 2007.

19. Ranjeeth Rajanala, M.S. Applied Mathematics, Thesis: Hydrodynamic fluid structure interaction for wave carpet simulation and implementation, 2007.
20. Elizabeth McGinnis, M.A. Mathematics, Thesis: Mathematical Modeling and Simulation of Fluid Structure Interaction for a High School Classroom, 2007.
21. Amanda Hinajosa, M.S. Applied Mathematics, Thesis: Mathematical Modeling of Nonlinear Convection-Diffusion Problem in Porous Media Flow and Transport, 2006.
22. Chellaram Kundomal, M.S. App Math: Computational Modeling of Membrane Mechanics, 2006.
23. Lauren Ferguson, M.S. Applied Math, Thesis: Computational Structural Modeling of MAVs 2006.
24. Edward Swim, Ph.D. Applied Mathematics, Dissertation: Non-conforming finite element methods for fluid-structure interaction problems, 2005.
25. Scott Franklin, Ph.D. Applied Mathematics, Dissertation: Three-field computational methodology for coupled systems, Co-directed with Prof. Philip Smith, 2005.
26. Vijay Moses, M.S. Applied Mathematics, Thesis: Distributed Control for beam problems, Co-directed with Prof. David Gilliam, 2005.
27. Mamatha Madupu, M.S. Interdisciplinary Studies, Thesis: A Compilation of research in disciplines of Electrical Engineering, Information Systems and Quantitative Sciences and Mathematics,
28. Wayne McGee, M.S. Applied Mathematics, Thesis: Three-dimensional mortar finite element method for convection diffusion equation with nonconforming meshes, 2003.
29. Daniel Hermann, M.S. Applied Mathematics, Thesis: Mathematical characterization of frictional properties of polymer materials, 2003.
30. Brian Tate, M.S. Applied Mathematics, Thesis: Comp. Meth. for Flow in Collapsible Tubes, 2003.
31. Shelly Davenport, M.S. Applied Mathematics, Thesis: Three dimensional computational modeling of geothermal systems, 2002.
32. Brian Roberson, M.S. Applied Mathematics, Thesis: Multi-factor Stochastic Models for Monte Carlo Simulation of Commodity prices, Co-directed with Prof. Dean Victory, 2001.

Undergraduate Students (Research - George Mason University)

1. Erick Caraballo Orengo, NSF EXTREEMS Program (Summer 2018)
2. Miguel Castro Riviera, NSF EXTREEMS Program (Summer 2017)
3. Christopher Moro, NSF EXTREEMS Program (Summer 2016)
4. Alicia Suchital, MDR Provost Program (Summer 2016)
5. Sydne Smith, MDR Provost Program (Summer 2016)
6. Alexander Baez, NSF EXTREEMS Program (Summer 2015)
7. Kathleen McLane, NSF EXTREEMS Program (Summer 2015)
8. Chelsea Mohindroo, Aspiring Summer Scientist Internship Program, ASSIP-GMU (Summer 2014)
9. Harnam Arneja II, Aspiring Summer Scientist Internship Program, ASSIP-GMU (Summer 2014)
10. Alexandra Zeller, Undergraduate Research in Computational Mathematics Program NSF (2013-14)
11. Peter Morfe, Cooper Union for the Advancement of Science and Art, NSF-REU (Summer 2013)
12. Deborah Koch, Sam Houston State University, NSF-REU (Summer 2013)
13. Matthew Brewster, University of Maryland, Baltimore County, NSF-REU (Summer 2013)
14. Aubrianna S. Lundy, Valdosta State University, NSF-REU (Summer 2013)
15. Varinder Grewal, Robinson High School, Fairfax, Virginia, NSF-REU (Summer 2013)
16. Maria A. Corsaro, University of Notre Dame, NSF-REU (Summer 2013)
17. Annika Jersild, College of William and Mary, NSF-REU Program (Summer 2012)

18. Marissa Soucy, Simmons College, NSF-REU Program (Summer 2012)
19. George Lytle, Asbury University, NSF-REU, Co-advised with Dr. Jerry Lin (Summer 2012)
20. Joe Renaud, Aspiring Summer Scientist Internship Program, ASSIP-GMU (Summer 2012)
21. Alexandra Zeller, Aspiring Summer Scientist Internship Program, ASSIP-GMU (Summer 2012)
22. James Cameron, Undergraduate Research in Computational Mathematics,NSF CSUMS (2011 - 12)
23. Charles Daly, URCM, NSF CSUMS Program (2011 - 2012)
24. Brianna Lynn, UR Project in Applied Mathematics, with Dr. Daniel Anderson (Summer 2011)
25. Syeda Zaidi, University of Maryland, College Park, VDOE MSP (Summer 2011)
26. Amber Xu, Carnegie Mellon University, NSF Research Experiences for Undergraduates (REU) Program, Co-advised with Dr. Dan Anderson (Summer 2010)
27. James Hickman, Shippensburg University, NSF - REU Program (Summer 2010)
28. James Halsall, Farmingdale College, New York, NSF - REU Program (Summer 2010)
29. Kevin Talbot, URCM, NSF CSUMS Program, Co-advised with Dr. Dan Anderson (2010 - 2011)
30. Avis Foster, Undergraduate Apprenticeship Program, GMU (2010 - 2011)
31. Minerva Venuti, Undergraduate Apprenticeship Program, Honors College, GMU (2009 - 2010)
32. Courtney Chancellor, Southern Methodist University, NSF - REU Program (Summer 2009)
33. Syeda Zaidi, University of Maryland, College Park, NSF – REU Program (Summer 2009)
34. Courtney Chancellor, Southern Methodist University, NSF - REU Program (Summer 2009)
35. Syeda Zaidi, University of Maryland, College Park, NSF – REU Program (Summer 2009)
36. Avis Foster, URCM, NSF CSUMS Program, Co-advised with Dr. Dan Anderson (2009 - 2010)
37. Minerva S. Venuti, URCM, NSF CSUMS Program, (2008 - 2009)
38. Kevin Y. Kelbaugh, URCM, NSF CSUMS Program, (2008 - 2009)

Undergraduate Students (K-12 Outreach – George Mason University)

1. Math Science Partnership VA-DOE COMPLETE Scholar (2013 – 2014)
    a. Kathleen McCallum
    b. Alicia Suchicital
    c. Steven Liddle
    d. Robert Argus
2. Math Science Partnership VA-DOE COMPLETE Scholar (2013 – 2014)
    a. James Cameron
    b. Joe Renaud
    c. Mayu Rubaharan
    d. Emily Eastlake
    e. Hilary Sparrel
    f. Robert Argus
    g. Stephen Liddle
    h. Josephine Kelly
    i. Emily Bird
3. Math Science Partnership VA-DOE COMPLETE Scholar (2012 – 2013)
    a. Byong Kwon
    b. James Cameron
    c. Mauricio Torrejon
    d. Joe Renaud
    e. Doris Thomas
    f. Emily Eastlake
4. Math Science Partnership VA-DOE COMPLETE Scholar (2011 – 2012)
    a. Byong Kwon
    b. Veronica Egid
    c. Jody Shipp
    d. Joe Renaud
    e. Alexandra Zeller
    f. Vasudha Ryali
5. Math Science Partnership VA-DOE COMPLETE Scholar (2010 – 2011)
    a. Avis Foster
    b. Troy Kelly
    c. Vasudha Ryali
    d. Mihail Sharov
    e. Esther Jackson
    f. Kabeed Mansur
    g. William Brayer
    h. Robert Hill
    i. Shadiya Mangru
    j. NatalieTaylor

Undergraduate Students (Texas Tech University)

1. Jamy Aaron Ryals, University of Houston-Downtown, Research Experiences for Undergraduates Program, NSF – REU Program, Texas Tech University (2007).
2. Corey Petty, Texas Tech University Research Experiences for Undergraduates Program, NSF – REU Program, Texas Tech University (2007).
3. Stephanie Alley, Texas Tech University Research Experiences for Undergraduates Program, NSF – REU Program, Texas Tech University (2006).
4. Ron Anderson, Thiel College, Research Experiences for Undergraduates Program, NSF – REU Program, Texas Tech University (2006).
5. Christina Anaya, McNair Scholarship Program, Undergraduate Senior Project (2003-04).
6. Matthew Gamel, Undergraduate Senior Honors Project (2002-03).

High School Students and Teachers (George Mason University)

1. Joshua Smith, ASSIP-GMU, Prince William Governor's School, Summer 2018
2. Vishal Kobla, ASSIP-GMU, Academy of Science, Loudoun, Summer 2018
3. Pranav Unni, ASSIP-GMU, American International School of Chennai, India, Summer 2018
4. Pradyuta Padmanabhan, Summer Research Program, FoxCroft School, Summer 2015, 2016, 2017
5. Saroja Erabelli, ASSIP-GMU, TJHSST, Summer 2014 and TJ Mentorship Project, Fall 2014
6. Michael Machado, ASSIP-GMU, PW Governor's School for Innovation, Summer 2013, 2014
7. Sabrina Mazer, ASSIP-GMU, PW Governor's School for Innovation, Summer 2014
8. Jeffrey Tolbert, ASSIP-GMU, Chantilly High School, Summer 2014
9. Akhil Waghmare, ASSIP-GMU, TJHSST, Summer 2014, 15 and Fall 2015
10. Haarika Chalasini, ASSIP-GMU, TJHSST, Summer 2014, 15 and Fall 2015
11. Sushruth Reddy, ASSIP-GMU, TJHSST, Summer 2013, 14 and TJ Mentorship Project, Fall 2014
12. Archis Bhandarkar, Rohan Banerjee ASSIP-GMU, TJHSST, Summer 2012, 2013
13. Sang Yun Kim, ASSIP-GMU, Prince William Governor's School, Summer 2012.
14. Alicia Hamar, Science and Engineering Fair Project, H-B Woodlawn High School, 2008 – 2009.
15. Ms. Kris Kappemeyer, NSF-REU Program, H-B Woodlawn, Arlington, VA, Summer 2009.
16. Mr. Brad Rankin, NSF-REU Program, T.C.Williams High School, Alexandria, VA, Summer 2010.
17. Ms. Emily Altadonna, NSF-REU Program, Stone Middle School, Centerville, VA, Summer 2012.
18. Ms. Mimi Corcoran, NSF-REU Program, Highland School, Faquier County, VA, Summer 2012.

High School Students (Texas Tech University): Kurt Litsch, Clark Scholarship Project (Summer 2007); Nicole Mitchell, Summer Academy Project (Summer 2006); Shanna Mcgee, Summer Academy Project (Summer 2006); Alexandre Bernussi, Summer Academy Project (Summer 2006); Shamini Parameswaran, Clark Scholarship Project (Summer 2003); Alex Stoll, Science Fair Project (Spring 2003); Bryant Heath, Clark Scholarship Project (Summer 2002); Ms. Elizabeth McGinnis, Research Experiences for Undergraduates NSF-REU Program, Monterey High, Lubbock, TX (2006 - 2007)

MEMBERSHIP ON OTHER GRADUATE ADVISORY COMMITTEES

1. **George Mason University**: Served on over 25 doctoral committees and MS committees.
2. **Texas Tech University**: Served on over 35 Masters/Doctoral committees.

TEACHING

COURSES TAUGHT: Department of Mathematical Sciences, George Mason University

- (Formal) Courses
  - Multidisciplinary Problem Solving in STEAM — COS400 — Spring 2019
  - Professional Preparation in STEM Disciplines — COS300 — Fall 2018
  - Numerical Analysis I — MATH446 — Spring 2018
  - Numerical Analysis I — MATH685 — Fall 2017
  - Spatial Reasoning — MATH600 — Fall 2016, Sp 2017
  - Analytic Geometry & Calculus I — MATH113 — Spring 2015
  - Numerical Analysis I — MATH685 — Spring 2014
  - Analysis of the Finite Element Method — MATH689 — Fall 2012
  - Graduate Numerical Analysis — MATH685 — Spring 2012
  - Numerical Analysis I — MATH446 — Fall 2010
  - Numerical Linear Algebra — MATH 625 — Spring 2010
  - Intro Calculus: Business Applications — MATH 108 — Fall 2009
  - Classical/Modern Numerical Analysis — MATH 689 — Fall 2009
  - Numerical Analysis I — MATH 446 — Spring 2009
  - Linear Math Modeling — MATH 111 — Fall 2008
  - Analytical Geometry/Calculus III — MATH 213 — Fall 2008
  - Graduate Seminar — MATH 795 — Fall 2008
  - Numerical Analysis I — MATH 446 — Summer 2008
  - Discrete Mathematics for BSIT — MATH 112 — Spring 2008
  - Numerical Solutions to Diff. Eqns. — MATH 686 — Spring 2008
  - Numerical Methods — MATH 685 — Fall 2007
  - Linear Math Modeling — MATH 111 — Fall 2007
- Directed independent studies through MATH 799, 998, 491, 998, 697 on the following topics:
  - Stochastic Finite Element Methods
  - Fluid-Structure Interaction Study
  - Biomathematics
  - Computational Mathematics
- Special courses (by contract / team taught)
  - STEM for SOLAR — UNIV391 — Spring 2016
  - Introduction to Research — COS120 — Fall2014 - 2018
  - DICE in STEM — UNIV391 — Spring 2015
  - Spatial Proportional Reasoning: Middle grades — MATH600 — Fall 2014, Spr2015
  - Computational Fluency for elementary grades — MATH600 — Fall 2014, Spr2015
  - STEM Mentoring Methods for Gifted Learners — EDPD501 — Fall 2014
  - Assessing Math Progressions — MATH600 — Sum 2013, 2014
  - Math Modeling for Teachers — MATH600 — Sum 2012, 2014
  - Rational Numbers, Proportional Reasoning — MATH614 — Summer 2014
  - 21 Century STEM Skills — MATH600 — Fall 2012, Spr2014
  - Number System and Number Theory — MATH610 — Fall 2011, 2010
  - Rational Numbers, Proportional Reasoning — MATH614 — Spring 11, 14, F10
  - Algebraic Connections & Technology — MATH 600 — Spr 2009, Fall 2009
  - Number Systems & Theory K-8 — MATH 600 — Summer, Spr 2008
  - Topics in Applied Mathematics — MATH 493 — Summer 2008

BRIEF DESCRIPTION OF THE SOME COURSES TAUGHT AT GEORGE MASON UNIVERSITY

MATH446: NUMERICAL ANALYSIS I. This senior course is intended to better prepare future engineers and computational scientists (as well as to assist practicing engineers and computational scientists), in understanding the fundamentals of numerical methods, especially their application, limitations, and potentials. This course is designed as an introductory course in computational techniques for solving problems from science and engineering with emphasis on applications. The course covers the classical fundamental topics in numerical methods such as, solution of nonlinear algebraic systems, approximation, numerical integration and numerical linear algebra.

MATH625: NUMERICAL LINEAR ALGEBRA. The goal of this graduate mathematics class was to provide a fundamental introduction to numerical linear algebra techniques used in mathematics, computer science, physical sciences and engineering. The course covers the classical fundamental topics in numerical linear algebra such as: solving systems of linear equations, least squares problems, eigen-value problems, and the singular value decomposition. Both direct and indirect methods will be covered, as well as analysis of the sensitivity to rounding errors.

MATH108: INTRO CALCULUS: BUSINESS APPLICATIONS. This general education course provides an understanding of the fundamental calculus concepts needed to pursue careers in business, economics, and the life and social sciences. Topics include functions, limits, derivatives, integration, applications.

MATH111: LINEAR MATH MODELING. This course that satisfies the general education requirement on quantitative reasoning covers a wide variety of fundamental topics including Matrix algebra, systems of linear equations, Markov chains, difference equations, and data fitting.

MATH213: ANALYTICAL GEOMETRY/CALCULUS III. The course is a follow up in the traditional Calculus sequence where the students are introduced to vectors and the geometry of space, vector-valued functions and motion in space, partial derivatives, multiple integrals and integration in vector fields with applications to three-dimensional analytic geometry.

MATH795: GRADUATE SEMINAR. This course is a 1-credit graduate seminar course, required for doctoral students in mathematical sciences that is designed to equip the graduate students with a realistic knowledge of academics and career expectations. This course serves as a forum for graduate students to practice giving mathematical talks and present interesting mathematics to other graduate students in a supportive environment. Self contained, introductory and exploratory talks which are accessible and appeal to a wide audience of graduate students are strongly encouraged.

MATH112: DISCRETE MATHEMATICS FOR BSIT. The undergraduate course satisfies the Discrete Mathematics requirement for the BSIT degree and covers essential topics including Logic, Sets, Principles of Counting, Probability, Graphs, Trees, Statements and Proofs and Mathematical Induction.

MATH686: NUMERICAL SOLUTIONS TO DIFFERENTIAL EQUATIONS. This course introduces students to mathematical models describing physical situations that are frequently expressed as differential equations. This course focused on development and analysis of methods for the numerical solution of differential equations including finite difference methods and finite element methods for elliptic problems but parabolic and hyperbolic problems will also be considered. Graphics, meshing, and simple iterative techniques were also discussed and implemented as computer codes.

MATH685: NUMERICAL METHODS. The focus of this course was to present computational techniques for solving problems arising in science and engineering. The course included theoretical development as well as implementation, efficiency, and accuracy issues in using algorithms and interpreting results. Specific topics included linear and nonlinear systems of equations, polynomial interpolation, numerical integration, and numerical solution of differential equations.

MATH799: DIRECTED DISSERTATION. Directed Reading and Independent Studies: Worked with a doctoral student on his PhD topic:Analytical and Computational models for Fluid Structure Interaction.

MATH493: TOPICS IN APPLICABLE MATHEMATICS. Team taught class that is a part of an existing Undergraduate Research in Computational Mathematics Program where students are exposed to computational methods for doing undergraduate research.

UNIV391: DICE: DESIGN THINKING, INNOVATION, CREATIVITY AND ENTREPRENEURSHIP: This is a new interdisciplinary course with a goal to engage undergraduate students at Mason in DICE. Creativity and innovation require free thinking and a combination of top-down support and grass-roots innovation propelled by passion to make a deep impact. The focus of this course is on creating the next generation STEM (Science, Technology, Engineering and Mathematics) scholars with (1) social/human focus, (2) interdisciplinary interest and (3) entrepreneurial streak, who are empowered to break down disciplinary boundaries for solutions of deep impact on pressing human needs. Furthermore, the next generation STEM students need to use "design thinking" to harness the state-of-the-art

capabilities to innovate and multidisciplinary STEM or similar approaches to solve real-world challenges which will be a focus of this course. Student engagement in 21st century skills including communication, collaboration, creativity and critical thinking will be an integral part of the course.

MATH600: ESTEEM: EXPEDITIONS IN SCIENCE TECHNOLOGY ENGINEERING EDUCATION THROUGH MATHEMATICS: In this course, participants explore mathematical connections to STEM disciplines and consider implications for high-school mathematics classrooms. This 3 credit graduate course consists of a summer institute, follow-up fall sessions and a collaborative lesson study activity. By the end of the course, participants demonstrate an increased professional competence, confidence and enthusiasm for teaching and learning high- school mathematics; a deeper understanding of integrated mathematics and science including the development of a variety of pedagogical strategies for critical thinking and problem solving; an appreciation for and increased knowledge of real-world STEM applications of high-school math; competency in working with data in engineering laboratories; an ability to conduct a Lesson Study as a collaborative learning/planning model for teachers and; competent identification of appropriate teaching strategies including selecting appropriate and worthwhile tasks, asking probing questions, guiding conversation and evaluating student thinking/work.

MATH600: NUMBER SYSTEMS AND NUMBER THEORY FOR K-8 TEACHERS. This course for indented for future K-8 mathematics teacher specialists examine concepts contained in the number and operations strands of the Virginia Standards of Learning (SOL) and/or referenced in the National Council of Teachers of Mathematics (NCTM) Principles and Standards. Through a coordinated program of activities, participants in this class learn to explore the structure of number systems, properties of numbers and develop number sense, computation and estimation concepts and skills. Throughout the class contribution of various individuals and cultures toward the development of mathematics and the role of mathematics in culture and society was also be presented.

MATH614: RATIONAL NUMBERS AND PROPORTIONAL REASONING. This was a special graduate course that was developed as a part of a Math Science Partnership grant from the Virginia Department of Education. This class enhances middle school teacher content knowledge of rational numbers, ratios and proportional reasoning through (a) Quantitative Proportional Reasoning (QPR), (b) Algebraic Proportional Reasoning (APR), and (c) Spatial Proportional Reasoning (SPR). This course covers Virginia SOL strands in fractions, ratios and rational numbers. Instruction covers interpretations, computation, and estimation with fractions, ratios, proportions, decimals, and percents through a coordinated program of activities that develop rational number concepts and skills. This course will engage participants in a coordinated program that includes hands-on activities and in-depth discussions that develop both rational number concepts and proportional reasoning. Attention is given to K-8 students' development and understanding of fractions, ratios, proportions, decimals and percents, and ultimately rational numbers and proportional reasoning. Special attention will be given to interpreting and assessing students' work and learning.

MATH610: NUMBERS AND NUMBER THEORY. This was a special graduate course that was developed as a part of a MSP grant from the Virginia Department of Education. This course is designed to develop a comprehensive understanding of our number system and how its structure is related to computation and problem solving. Special attention is also given to children's thinking, how they learn the fundamentals of number systems, their problem solving strategies, and how they construct their understanding of various number systems and arithmetic.

MATH600: ALGEBRAIC CONNECTIONS AND TECHNOLOGY. This was a special graduate course that was developed as a part of a State Council of Higher Education in Virginia Grant to enhance the mathematics content of elementary and middle school teachers. This unique graduate class takes the teachers through a content-focused summer institute where the teachers grapple with rich mathematical problems and try to make algebraic connections. This summer institute is followed by an ongoing professional development for teachers through school based lesson study as well as online e-webinars where the teachers form collaborative lesson plans and deliver it in various schools. Also, special attention was given to articulating big ideas, analyzing problem-solving strategies, identifying and using appropriate models, multicultural education, examining technology connections and learning about assessment tools. The course has had a great impact on the teachers and has already attracted the attention of the VDOE.

MATH689: CLASSICAL/MODERN NUMERICAL ANALYSIS. This is a new multi-disciplinary graduate course that has been developed for students from a variety of disciplines including engineering and science. The purpose of this class is for students to actively learn to: (a) Develop the ability to mathematically formulate problems from a nonmathematical description; (b) Identify features relevant to a model and be able to analyze the model using analytical techniques and (c) Perform simulations using state-of-the-art mathematical software such as MATLAB and Maple to interpret the results and suggest recommendations. In summary, the primary goal of this course is to teach the students to employ the philosophy of *here is a problem, use mathematics to solve it* rather than *here is the mathematics, use it to solve this problem.* This course provides a unique experience of how mathematics is applied outside academia and also broadens the horizon beyond what is usually presented in graduate education.

COURSES TAUGHT: Department of Mathematics and Statistics, Texas Tech University

- 2007 Numerical Analysis II, Graduate (Jan-May)
- 2007 Mathematical Modeling for Teachers (Jan-May)
- 2006 Numerical Analysis I, Graduate (Aug-Dec)
- 2006 Differential Equations II, Undergraduate (Aug-Dec)
- 2006 Numerical Methods for Engineers, Graduate (Jan-May)
- 2006 Introduction to Numerical Analysis, Undergraduate (Jan-May)
- 2005 Calculus I, Undergraduate (Aug-Dec)
- 2005 Industrial Mathematics, Graduate (May-June)
- 2005 Calculus I, Undergraduate (May-June)
- 2005 Numerical Methods for Engineers, Graduate (Jan-May)
- 2005 Introduction to Numerical Analysis, Undergraduate (Jan-May)
- 2004 Tech Transition: Freshman Seminar, Undergraduate (Aug-Dec)
- 2004 Differential Equations II, Undergraduate (Aug-Dec)
- 2004 Numerical Methods for Partial Differential Equations, Graduate (Aug-Dec)
- 2004 Advanced Problems, Graduate (June-July)
- 2004 Industrial Mathematics, Graduate (Jan-May)
- 2004 Numerical Analysis II, Graduate (Jan-May)
- 2003 Numerical Analysis I, Graduate (Sept-Dec)
- 2003 Numerical Methods for Engineers, Graduate (Sept-Dec)
- 2003 Industrial Mathematics, Graduate (Jan-May)
- 2003 Mathematical Computing, Undergraduate (Jan-May)
- 2002 Numerical Methods for Engineers, Graduate (Sept-Dec)
- 2002 Numerical Methods for Partial Differential Equations, Graduate (Sept-Dec)
- 2002 Computer Literacy and Programming - MATLAB, Graduate (July-Aug)
- 2002 Numerical Analysis II, Graduate (Jan-May)
- 2001 Numerical Analysis I, Graduate (Sept-Dec)
- 2001 Computer Literacy and Programming - MAPLE, Graduate (Sept-Dec)
- 2001 Computer Literacy and Programming - MATLAB, Graduate (July-Aug)
- 2001 Computer Literacy and Programming - MATLAB, Graduate (Jan-May)
- 2001 Introduction to Numerical Analysis, Undergraduate (Jan-May)
- 2000 Calculus I, Undergraduate (Aug-Dec)
- Have been the Coordinator for the Seminar for Applied Mathematics (Jan 2001 - Dec 2006).

Department of Mathematics and Statistics, University of Maryland, Baltimore County

1997 Calculus II, Instructor (May-Aug)
1997 Intermediate Algebra, Instructor & Course Coordinator (Jan-May)
1996 Pre-calculus, Instructor (May-Aug)
1996 Intermediate Algebra, Instructor & Course Coordinator (Aug-Dec and Jan-May)

SERVICE
George Mason University

INTERNATIONAL COMMITTEES

1. Elected Member, Latin American Consortium for Promotion and Support of Multidisciplinary Research and Education (2016 – Current).
2. Co-Chair, Int. Conf. in Mathematics & Science Education for Developing Countries (2015 - 2017)
3. Internationalization Council on Undergraduate Research (CUR) Task Force (2014 - Current)
4. Selected to be a member of the National Academies Arab American Frontiers Symposium (2014)
5. Curriculum designer for a new Associates degree and a Bachelor of Science Degree in Information Communication and Technology for Suriname (2014)
6. Collaborator on a grant with POSTECH university on creating a course on Design Thinking, Innovation, Creativity and Entrepreneurship (2013, 2014)
7. Curriculum designer for the Masters and Ph.D. programs in the School of Mathematics, Computation, Communication, Science and Engineering (Summer 2011)

NATIONAL COMMITTEES

8. Associate Director for Applied Mathematics, National Math Alliance (2018 – Present)
9. Chair, SIAM Diversity Advisory Committee (2017 - Present)
10. Co-Chair, SIAM Mid-Atlantic Student Conference (2010 - Current)
11. Member, Transforming Post Secondary Education in Mathematics (2014)
12. Program Director, SIAM Activity Group on Education (2014 - Current)
13. Elected Council member, Mathematics and Computer Science Division, CUR (2013)
14. Elected Member, National Academy of Science US Commission for Math Instruction (2013)
15. Selected to be a member of the Lego Education Advisory Panel (2013, 2014)
16. Advisory Board Member, Children's Science Center (2015 – Current)
17. Advisory Board Member, Alpha Ori Technologies (2017 – Current)
18. Advisory Board Member, Pinnacle Academy (2016 – Current)
19. Advisory Board Member, Station 1 (2017 – Current)
20. Advisory Board Member, NewWave Foundation (2018 – Current)
21. Panel member, SIAM-NSF Workshop on Modeling Across the Curriculum (2012)
22. Panel member, Division of Mathematical Sciences, National Science Foundation (2008,2009,2012)
23. Project NExT (New Experiences in Teaching) Consultant, MAA and AMS (Sep 2007 – current)
24. Co-Organizer, *SIAM-MAA Mid-Atlantic Regional Student Conference* (2010, 2011, 2015).

UNIVERSITY COMMITTEES

1. College Committee Member, ADVANCE Program (2018 – Current0
2. University Liaison, Governor School @ Innovation Park (2013 - Current)
3. Member, Ph.D. Program in Bioengineering, GMU (2014)
4. Member, GMU Innovative Learning for University Strategic Planning (2013, 2014)
5. Member, GMU Leadership Legacy Cohort #3 (2012-2013)

6. Member, President's Vision, Values and the Mason Graduate Working Group(2012 – current)
7. Member of the Advisory Council, Center for Teaching Excellence (2008 – Current)
8. Member, GMU Teaching Awards Selection Committee, Center for Teaching Excellence (2007)
9. Member of the Honors College Advisory Board (2009 – Current)
10. Member, University Wide Quality Enhancement Planning Committee (2008 – Current)
11. Member, University Search Committee for Director of the UG Apprentice Program (June 2010).
12. Charter Member, The Honor Society of Phi Kappa Phi, George Mason University (2011)

DEPARTMENTAL COMMITTEES

1. Member of the Policy and Hiring Committee, Mathematical Sciences (2009 – 2011)
2. Member of the Graduate Committee, Mathematical Sciences: Roles included reviewing the graduate applications and providing a second opinion for each application. (2008 – Current)
3. Participated in promoting the graduate program through the University wide graduate fair and also by presenting the program at other schools.
4. Member of Accreditation & Assessment Committee, Mathematical Sciences: Roles included developing a report addressing student learning outcomes, determine an evaluation process to review and discuss results of performance of students in B.A, B.S., M.S. and the Ph.D. programs.
5. Represented the department at the Graduate fair at the Joint Mathematics Meeting (2009, 2010)
6. Participated in the annual GMU Graduate Showcase (2007 – Current).
7. Initiated the SIAM Graduate Student Chapter and organized several first time events: Faculty Fall Research Symposium, Spring Colloquium Speaker and SIAM Social Event (2008 – Current)

PROFESSIONAL AFFILIATIONS

1. Member: AMS, MAA, SIAM, NCTM
2. Journal Referee: ASME Journal of Fluids Engineering; Numerische Mathematik; SIAM Journal of Numerical Analysis; SIAM Journal on Scientific Computing; Computers and Mathematics with Applications; Mathematical and Computer Modeling; International Journal of Numerical Methods in Fluids; International Journal for Numerical Methods in Engineering; Numerical Methods for Partial Differential Equations; J. Biomechanics; Journal of Biomechanical Engineering; Biomechanics and Modeling in Mechanobiology; Journal of Computational and Applied Mathematics; Applied Numerical Analysis and Computational Mathematics; National Council for Teachers in Mathematics; Applied Mathematics-A Journal of Chinese Universities; Journal of Algorithms and Computational Technology; Journal of Applied Mathematics
3. Book Reviewer: SIAM Book Reviews; Prentice Hall; Freeman Publishing
4. Technical Assistance: Cardiovascular Solid Mechanics: Cells, Tissues, and Organs, Jay D. Humphrey; New developments and applications in experimental design, N. Flournoy, W. F. Rosenberger and W. K. Wong.

PROFESSIONAL DEVELOPMENT AND OUTREACH ACTIVITIES

1. Director, STEM Accelerator Program (2013 - Current)
2. Director, COMPLETE Center (2010 - Current)
3. Organizer, First Annual K-8 Science and Engineering Fair (2014)
4. Coordinator: STEM MANIA, a one-week summer camp for students in grades 3-5 (2014)

5. Coordinator: FOCUS - Females of Color Underrepresented in STEM, a one-week summer residential camp for middle school girls in grades 6-8 (2014)
6. Coordinator: STEM Bootcamp, a one-week residential camp for incoming freshmen to prepare them for college readiness in first year STEM courses (2014)
7. Coordinator: AYGS Mentorship Institute, a one-week residential institute for teachers from 19 Governor's school in Virginia to enhance their mentorship practices.
8. Mathematician, Northern Virginia Mathematics Teachers' Circle (2011 – Current)
9. Content Expert Member, Mathematics Textbook Adoption Committee, FCPS (July 2011)
10. Panelist, GMU Annual Event for Prospective Honors College Level Freshmen (March 2011)
11. FCPS Advanced Academics Family Advocacy and Parent Night Speaker (March 2011)
12. Girls in Engineering, Mathematics and Science Workshop Speaker (March 2011)
13. FCPS Advanced Academics Institute Workshop Speaker (February 2011)
14. Trained 750 K-8 teachers in Algebraic Thinking summer institute (2008 - Current)
15. Presenter, SIAM booth at the USA Science and Engineering Festival (Oct 2010)
16. Honors College Colloquium Speaker, George Mason University (Oct 2010)
17. Last Lecture Series Speaker, Living and Learning Community, GMU (February 2010)
18. Undergraduate Math Club Speaker, Mathematical Sciences, GMU (Spring 2009)
19. Speaker, GMU College of Science Open House (Fall 2008)
20. Invited Speaker, Montgomery Blair High School (Fall 2010)
21. Mentor in the GMU Dream Catcher's Program (Gazette Article 2009)
22. MATHMANIA Director, New Horizons Summer Mathematics Enrichment Camp for K3-5, New Century College, GMU (Summer 2009, 2010)
23. Developing Algebraic Connection and Technology Teacher Preparation programs in K-8 school districts (Gazette Article 2008)
24. Faculty Advisor, Society of Industrial and Applied Mathematics, GMU Chapter (2008-Current). The outreach event was focused on SIAM News (Spring 2010)
25. Directed the Science and Engineering Fair Project for a High School Student Ms. Alicia Hamar from H-B Woodlawn High School. The project won the grand prize award in Northern Virginia and Ms. Hamar was invited to the Intel National Competition (Fall 2008 and Spring 2009)
26. Graduate Studies in Mathematics, Invited Panelist, U of Maryland, Baltimore County (2009)
27. Member of the Northern Virginia Board of MATHCOUNTS. One of the main organizers and the Master of Ceremonies of the Regional MATHCOUNTS competition (2008 - Current)
28. George Mason University Undergraduate Math club Speaker (Spring 2009)
29. Workshop Presenter, Sally Ride Science Festival (Spring 2009)
30. Invited Speaker, GMU College of Science Open House (Fall 2008)
31. Invited Speaker, Thomas Jefferson High School for Science and Technology (Fall 2008)
32. Math Enrichment Presentations at ten middle and elementary schools (2008 - Current)
33. Faculty speaker, NCSSSMST High School Student Science Conference, GMU (October 2007)
34. University faculty partner, AWM teacher partnership program (Sept 2007 – Current)
35. The Thomas Jefferson High School for Science and Technology Science and Engineering Fair. Judge: Mathematical Sciences (2008)
36. Judge for MAA Undergraduate Poster Competition, JMM (January 2008 - Current)

SERVICE

Texas Tech University

DEPARTMENTAL ACTIVITIES

1. Associate Director of Graduate Studies (2006-07)
2. Chair and Coordinator, Master of Arts Program (2006-07)
3. Elected Member, Executive Committee (2006-08)
4. Elected Member, Graduate Committee (2004-06)
5. Elected Member, Undergraduate Committee (2002-04)
6. Member, Numerical Analysis Doctoral Preliminary Examination Committee (2001-06)
7. Faculty Advisor, Society of Industrial and Applied Mathematics, TTU Chapter (2002-05). The organization won the Outstanding Academic Organization for the first time in 2004-2005.
8. Seminar Coordinator, Applied Mathematics Seminar Series, (2001-06)
9. Organizer, SIAM Annual Graduate Student Research Day, (2003-04)
10. Principle Organizer, Redraider Minisymposium on Mathematical and Computational Modeling of Biological Systems (2003) which was supported by the NSF and the Whitaker Foundation. This conference attracted over 150 participants that included undergraduate students, graduate students, post-doctoral students and young scientists from all over the world.
11. Organizer, Emmy Noether Mathematics High school Day for Women, Lubbock (2003-2007)
12. Developed a multi-disciplinary graduate course on Industrial Mathematics. This course has been offered thrice (2003, 2004, 2005) and has had one of the highest enrollment of graduate students from a variety of disciplines in science and engineering.
13. Professional Reviewer, for over 15 top journals and a referee for 3 book publishers.
14. Associate Editor, Texas College Mathematics Journal (2005-2009)
15. Special Session Organizer on Partial Differential Equations and its applications in Biomedical Study, 2005 AMS Spring Central Sectional meeting, Lubbock.
16. Special Session Organizer on Graduate and Undergraduate Student Research, 2005 AMS Spring Central Sectional meeting, Lubbock.
17. Panel Session Organizer on Careers in Mathematics, 2005 AMS Sectional Meeting, Lubbock.
18. Minisymposium Organizer, 2005 SIAM Annual meeting, New Orleans.
19. Special Session Organizer on Computational Methods, 2005 International Conference on Structural Stability and Dynamics, Orlando
20. Organizer, Panel session on Using the Web Effectively in Teaching, MathFest 2001, MAA, Madison (Aug 2001)
21. Director, TTUSuMAc: Texas Tech Summer Mathematics Academy (2004-06), An advanced mathematics academy for talented high school students in West Texas
22. Organizer, Session on Careers in Mathematics, AMS Sectional Meeting (April 2005);

UNIVERSITY ACTIVITIES

1. Member, Selection Committee for the Clark Scholar Program (2004-06)
2. Member, Arts and Sciences Scholarship Committee (2005-06)

3. One of the four panelists for a TLTC workshop on Keeping your head over water, a TEACH Workshop (2005)
4. Elected Member, Graduate Dean Search Committee, College of Arts and Sciences (2003)
5. Panelist for the 17th Annual New TA Workshop, College of Arts & Sciences (2003)
6. Judge for the Annual GPSA Poster Session - Research Competition (2003-05)
7. Judge for the Howard Hughes Medical Institute Undergraduate Research Days, Honors College Undergraduate Research Fellowship Program (2003, 2004)
8. Faculty Advisor for the India Students Association (2003-06). The organization was judged the Outstanding International Organization at TTU for 2003, 2004, 2005 and 2006.
9. Mentor & Steering Committee Member, Clark Scholar High School Program (2002-07)

PROFESSIONAL DEVELOPMENT AND OUTREACH ACTIVITIES

1. Member,Board of Directors, South Plains Regional Science and Engineering Fair, Texas (2004-07)
2. Mentor for Ms. Julia Head in the TEACH: Teaching Effectiveness And Career ehHancement Program (TLTC), which is modeled after the national Preparing Future Faculty movement, is geared toward Ph.D. students with teaching appointments (2005).
3. Mentor for Ms. Stephanie Monk and Mr. Donnell Brown (Freshmen at Texas Tech), in the TTU Mentor-Tech Program, the purpose of which is to enhance the quality of the educational experience of African American and Hispanic students through programs, services, advocacy, campus and community involvement (2003-2004).
4. Mentor for Mr. John Gonzales (McWhorter Elementary - 5th grade), in the LISD-MESA (Mentor Each Student to Achieve) program (2003-2004).
5. Mentor for Ms. Christina Anaya in McNair Scholar Program which prepares low-income, first-generation and minority undergraduates for graduate study at the PhD level (2003-2004).
6. Co-Director of the Calculation Across Cultures program, an outreach program to educate K4-6 students about methods for organizing arithmetical calculations that have varied across cultures and history. This program is organized through the K-12 International Education Outreach at the International Cultural Center (2003-2007).
7. Presenter of several K-12 Outreach talks to Cavazos Junior Highschool, Lubbock Highschool, Ramirez Charter School, Dunbar Middle School, Wheatley Elementary School, Estacado Highschool and Lubbock Education Council and the College of Education, to over 1000 K6-9 graders and teachers. Also established math clubs at various schools (2002-2006).
8. Director and Organizer of the Discover India Program, an outreach program to educate K-4 students about India. This program is organized through the K-12 International Education Outreach at the International Cultural Center (2003-2005).
9. Director and Organizer of the cultural event Sampradaya-From Myths to Modernity, a classical dance performance from India, Allen Theater (October 2003).
10. Director and Organizer of the cultural event Milan-Mirroring the Culture of India, a cultural show, Allen Theater (August 2004).
11. Director and Organizer of the cultural event Kathakali a dance drama from India at the Lubbock Civic Center (April 2005).
12. Organizer of the cultural event Jaagruthi, a cultural show, Cavazos Junior Highschool (August 2005). Organizer of the cultural event Lubbock India Arts Festival, a two day program at the International Cultural Center and Lubbock Municipal Colloseum (October 2005); Rhythms of Shiva and Karyshma, at Ed Irons Junior High and Lubbock Civic Center respectively (April 2006).