Curriculum Vitae

Lake R Ritter
Department of Mathematics
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Education

1999-2003: Northwestern University, Evanston IL.
2003: PhD conferred Thesis title: On Initiation of Polymerization Waves in Thermal Free-Radical Frontal Polymerization
Advisors: V. A. Volpert and W. E. Olmstead

1995-1999: University of Texas at Dallas, Dallas TX.
1999: MS Applied Mathematics
1998: BS Summa Cum Laude Mathematical Science

Scholarships and Awards

2016: William Hanson Volunteer of the Year Award (awarded by Cobb Literacy Council)

2015–16: Distinguished Teaching Award, College of Science and Mathematics, Kennesaw State University

2009: Outstanding Faculty of the Year Award, Southern Polytechnic State University

2003-2006: NSF VIGRE Post-Doctoral Fellowship, Texas A & M University

2000-2001, 2001-2002, 2002-2003: Achievement Awards for College Scientists,
Chicago Chapter of ARCS Foundation Inc.

1999-2000: Royal E. Cabell Fellowship, Northwestern University

Positions Held

August 2015-present: Associate Professor of Mathematics, Kennesaw State University, Marietta Georgia
August 2012-July 2015: Associate Professor of Mathematics, Southern Polytechnic State University, Marietta Georgia

August 2006-July2012: Assistant Professor of Mathematics, Southern Polytechnic State University, Marietta Georgia

August 2003-May 2006: Visiting Assistant Professor of Mathematics, Department of Mathematics Texas A & M University, College Station Texas

January 2003-May2003: Teaching Assistant, Department of Engineering Science and Applied Mathematics, Northwestern University, Evanston Illinois
September 2001-December 2002: Tutor, McCormick School of Engineering and Applied Science, Northwestern University, Evanston Illinois

September 2000 - May 2001 : Teaching Assistant, Department of Engineering Science and Applied Mathematics, Northwestern University, Evanston Illinois
June 1998 - August 1999: Teaching Assistant, Department of Natural Science and Mathematics, University of Texas at Dallas, Dallas Texas
June 1997 - May 1998: Undergraduate Assistant, University of Texas at Dallas, Dallas Texas

Publications

AN INCENTIVIZED EARLY REMEDIATION PROGRAM IN CALCULUS I With Jennifer Vandenbussche, and Christina Scherrer in *International Journal of Mathematics Education in Science and Technology* (2018) pp. 1-15

ON THE CONTRIBUTIONS OF W. EDWARD OLMSTEAD With Colleen Kirk in *J. of Integral Equations and Applications* v. 30**(1)** (2018) pp.3-15

A MATHEMATICAL MODEL OF ENDOTHELIAL NITRIC OXIDE SYNTHASE ACTIVATION WITH TIME DELAY EXHIBITING HOPF BIFURCATION AND OSCILLATIONS With Carol Chrestensen and John Salerno, in *Mathematical Biosciences* 281 (2016) pp. 62-73

FOAM CELL FORMATION IN ATHEROSCLEROSIS: HDL AND MACROPHAGE REVERSE CHOLESTEROL TRANSPORT With Shuai Zhang and A.I. Ibragimov, in *Discrete and Continuous Dynamical Systems, Supplement* (2013) pp. 825-835

ILLUMINATING ATHEROGENESIS THROUGH MATHEMATICAL MODELING (Book Chapter) With A.I. Ibragimov, J.R. Walton, and C.J. McNeal, in *Atherogenesis*, Sampath Parthasarathy ed. (2011), pp. 49-70

STABILITY ANALYSIS OF A REACTION-DIFFUSION SYSTEM MODELING ATHEROGENESIS With A.I. Ibragimov, and J.R. Walton, *SIAM J. Appl. Math.* **70** (2010), pp. 2150–2185

TO DISCUSS OR NOT TO DISCUSS: INTEGRATING PEDAGOGIES FOR HONORS AND MATHEMATICS, with W. Griffiths and N. Reichert, *Honors in Practice* **Vol. 6** (2010), pp. 85–99

STABILITY ANALYSIS OF A MODEL OF ATHEROGENSIS: AN ENERGY ESTIMATE APPROACH II With A.I. Ibragimov, C.J. McNeal, and J.R. Walton, *J. Comp. Math. Meth. Med.* **Vol.11(1)** (2010) pp. 67–88

STABILITY ANALYSIS USING AN ENERGY ESTIMATE APPROACH OF A REACTION DIFFUSION MODEL OF ATHEROGENESIS With A.I. Ibragimov, C.J. McNeal, and J.R. Walton, *Discrete and Continuous Dynamical Systems, Supplement* (2009) pp. 630-639

STABILITY ANALYSIS OF A MODEL OF ATHEROGENSIS: AN ENERGY ESTIMATE APPROACH With A.I. Ibragimov, C.J. McNeal, and J.R. Walton, *J. Comp. Math. Meth. Med.* **Vol.9(2)** (2008) pp. 121–142

A DYNAMICAL MODEL OF ATHEROGENESIS AS AN INFLAMMATORY RESPONSE with A.I. Ibragimov, C.J. McNeal, and J.R. Walton, *DCDIS A Supplement, Advances in Dynamical Systems*, **Vol.14(S2)** (2007), pp. 185–189

A MATHEMATICAL MODEL OF ATHEROGENESIS AS AN INFLAMMATORY RESPONSE with A.I. Ibragimov, C.J. McNeal, and J.R. Walton, *Math. Med. Biol.* **22** (2005), pp. 305–333

A NUMERICAL ANALYSIS OF INITIATION OF POLYMERIZATION WAVES with A.Heifetz, V.A.Volpert and W.E.Olmstead, *Math. Comp. M.* **41** (2005), pp. 271–285

INITIATION OF FREE-RADICAL POLYMERIZATION WAVES with W.E.Olmstead and V.A.Volpert, *SIAM J. on Appl. Math.* 63 (2003), pp. 1831–1848

Selected Colloquium Talks and Presentations

Title: *An incentivized early remediation program in Calculus 1*
(10 minute), MAA SE Section
Mar. 2018, Clemson SC.

Title: *A delay differential equation model of activation of endothelial nitric oxide synthase*
(10 minute), JMM 2018
Jan. 2018, San Diego CA.

Title: *A delay differential equation model of phosphorylation of endothelial nitric oxide synthase*
(15 minute), SEARCDE
Oct. 2017, Kennesaw GA.

Title: *An incentivized early remediation program in Calculus 1: To require or hours or not?*
(15 minute), MAA SE Section
Mar. 2017, Macon GA.

Title: *A delay differential equation model of phosphorylation of endothelial nitric oxide synthase*
(15 minute), MAA SE Section
Mar. 2016, Birmingham AL.

Title: *A Mathematical Model of Atherogenesis*
(20 minute), SIAM SE Atlantic Section

Mar. 2016, Athens GA.

Title: *Teaching Calculus II with No-Cost-to-Students Course Materials*
(15 minute), MAA SE Sectional
Mar. 2015, Wilmington NC

Title: *A preliminary model of phosphorylation states of endothelial nitric oxide synthase*
(10 minute), Joint Mathematics Meetings
Jan. 2015, San Antonio TX.

Title: *Teaching Calculus II in modular format to increase student success*
(10 minute), Joint Mathematics Meetings
Jan. 2015, San Antonio TX.

Title: *A mathematical model of macrophage reverse cholesterol transport by high density lipoproteins*
(10 minute), Joint Mathematics Meetings
Jan. 2014, Baltimore MD.

Title: *A reaction-diffusion model of chemotactic processes in atherogenesis*
(25 minute), 4^{th} International Conference on Mathematical Modeling and Analysis
Oct. 2013, Lubbock TX.

Title: *Foam cell formation in atherosclerosis: HDL and macrophage reverse cholesterol transport*
(10 minute), Joint Meetings of the AMS
Jan. 2013, San Diego CA.

Title: *Foam cell formation in atherosclerosis: HDL and macrophage reverse cholesterol transport*
(25 minute), 9^{th} Annual AIMS Conference on Differential Equations and Dynamical Systems
July 2012, Orlando Florida.

Title: *Stability Analysis of a Reaction-Diffusion System Modeling Atherogenesis*
(25 minute), SIAM Conference on Applications of Dynamical Systems
May 2011, Snowbird Utah.

Title: *Mathematical modeling of atherogenesis*
(50 minute invited talk), Analysis and Applied Mathematics Seminar Series, Kennesaw State University
April 2011, Kennesaw Georgia.

Title: *General stability analysis of a model of atherogenesis*
(10 minute), Joint Meetings of the AMS,
January 2011, New Orleans, Louisiana.

Title: *A dynamic model of atherogenesis as an inflammatory response*
(Poster Presentation), Red Raider Mini-symposium in Population Biology and Epidemiology,
October 2010, Lubbock Texas.

Title: *Writing in the Mathematics Classroom*

(60 minute), Mathematics Education Workshop for 8-12 Teachers,
March 2010, Marietta Georgia.

Title: *The effects of boundary transport and anti-oxidants on stability of a model of atherogenesis*
(10 minute), Joint Meetings of the AMS,
January 2010, San Francisco, California.

Title: *Stability analysis of a model of atherogensis*
(25 minute), 24^{th} Annual Shanks Conference Mathematical Modelling in the Medical Sciences
May 2009, Nashville Tennnessee.

Title: *Stability analysis of a model of atherogensis*
(25 minute), 7^{th} Annual AIMS Conference on Differential Equations and Dynamical Systems
May 2008, Arlington Texas.

Title: *Stability analysis of a model of atherogensis: An energy estimate approach*
(10 minute), The Joint Mathematics Meeting of the AMS, MAA, and SIAM
January 2008, San Deigo California.

Title: *Mathematical Modelling of Cardiovascular Disease*
(50 minute), Southern Polytechnic State University
April 2007, Marietta Georgia.

Title: *A Mathematical Framework for the Modeling of Athersclerosis*
(50 minute invited), University of Texas at Dallas
October 2005, Dallas Texas.

Title: *Modeling Atherogenesis as an Inflamatory Response*
(45 minute talk) 2005 Spring Central Section Meeting of the AMS
April 2005, Lubbock Texas.

Title: *A Model of Atherogenesis: an Inflammatory Response*
(20 minute talk) Texas/United Kingdom Collaborative Research Initiative,
April 2004, Houston Texas.

Title: *A Model of Atherogenesis: an Inflammatory Response*
(30 minute invited talk), Cardiovascular Research Institute Colloquium, Texas A & M University System Health Science Center
April 2004, Temple Texas.

Title: *A Model of Atherogenesis: an Inflammatory Response*
(20 minute talk) 2004 Texas PDE Conference,
March 2004, College Station Texas.

Title: *Initiation of Free-Radical Polymerization Waves*
(50 minute talk) Applied Mathematics Colloquium, Texas A & M University,
November 2003, College Station Texas.

Title: *Initiation of Polymerization Waves*
(50 minute talk) Elmhurst College, Undergraduate Mathematics Colloquium,
April 2003, Elmhurst Illinois.

Title: *Initiation of Free-Radical Polymerization Waves*
(15 minute talk) The Joint Mathematics Meeting of the AMS, MAA, and SIAM
January 2003, Baltimore Maryland.

Grant Writing/Funding Activities

2017: SEMINAL: *Student Engagement in Mathematics through an Institutional Network for Active Learning* with Kadian Callahan, Jennifer Vandenbussche, and Erik Westlund ($93,300 funded)

2014: Affordable Learning Georgia Textbook Transformation Grants: *A course model for Calculus II with open access text and tools* with Shangrong Deng. ($10,800 funded)

2014: Interdisciplinary Research Opportunities Program: *Connecting primary eNOS signaling data with computational analysis to assess the complexities of eNOS signaling* with John Salerno and Carol Chrestensen. ($75,000 funded)

2013: Technology Fee Proposal: *Technology for lecture capture and archive of mathematics class content to improve student success* with J. Vandenbussche and Y. Kang ($5,471 NOT funded)

2012: Technology Fee Proposal: *Technology for lecture capture and archive of mathematics class content to improve student success* with J. Vandenbussche and W. Griffiths. ($16,780 NOT funded)

2010: MATH + SCIENCE = SUCCESS Small Grants Program: *To improve teaching and assessment of K-16 mathematics through collaboration of college and high school teachers and develop collegial relationships with local 6-12 instructors in support of SPSUs developing education programs* with Deborah Poss ($5000 funded)

2009 MATH + SCIENCE = SUCCESS Small Grants Program: *To develop and implement strategies to increase student majors and baccalaureate degrees in Mathematics, Sciences, and Engineering, a STEM discipline* with T. Xu, N. Pascu, J. Vandenbussche, M. Dillon, D. Lossner, D. Slater, and D. Poss ($5000 funded)

2009: NSF IT-Catalyst grant writing steering committee member

2007: NSF IT-START grant writing steering committee member

Selected Service Activities:

Academic Service Positions (by academic year)

2017-18: Co-coordinator MATH TALKs seminar series, Gateways to Completion G2C advisory committee and Chair Calculus I task force, Department Faculty Council (member), SEMINAL co-PI and steering committee member, Precalculus course coordinator, Lower Division Calculus Strand Committee (member), Upper Division Calculus Strand Committee (member), Search Committee for Math. Chair Position (member), Editor of the 2017 SEARCDE Proceedings (with D. Adhikari)

2016-17: Co-coordinator MATH TALKs seminar series, Gateways to Completion G2C advisory committee and Chair Calculus I task force, Southeaster Atlantic Regional Conference on Differential Equations Steering Committee (member), Lower Division Calculus Strand Committee (member), Upper Division Calculus Strand Committee (member), Search Committee for Math. Chair Position (member)

2015-16: Co-coordinator MATH TALKs seminar series, Gateways to Completion G2C advisory committee and Chair Calculus I task force

2014-15: Faculty Senate (for Dept. of Math.), Faculty Council (at large), Coordinator of Colloquia for the Dept. of Mathematics, Co-coordinator MATH TALKs seminar series

2013-14: Faculty Senate (for Dept. of Math.), Faculty Council (at large), Coordinator of Colloquia for the Dept. of Mathematics, Calculus Committee (member), Engineering Math Committee (member), Education Advisory Council (member)

2012-13: Faculty Council (at large), Coordinator of Colloquia for the Dept. of Mathematics, Search Committee for two Lecturer in Mathematics positions (Chair) Calculus Committee (member), Engineering Math Committee (member), Education Advisory Council (member), Steering Committee SPSUTeach grant (member)

2011-12: Search Committee for Tenure Track position in Math ED (member) Calculus Committee (member), Engineering Math Committee (member), Core Curriculum Committee (member), Education Advisory Council (member)

2010-11: Calculus Committee (member), Engineering Math Committee (member), Core Curriculum Committee (member)

2009-10: Secretary to the Senate and General Faculty, Faculty Senate (for Dept. of Math.), Calculus Committee (member), Engineering Math Committee (member), Core Curriculum Committee (member), Education Advisory Council (member)

2008-09: Faculty Senate (for Dept. of Math.), Undergraduate Student Status Committee (Chair), Alternative Appeals Committee for Financial Aid (member), Calculus Committee (member), Engineering Math Committee (member), Core Curriculum Committee (member)

2007-08: Undergraduate Student Status Committee (member), A&S Planning Executive and By Laws Committee (member), SACS Committee on Federal Requirements (member), Search Committee for two Tenure Track positions in Mathematics (member), Calculus Committee (member), Engineering Math Committee (member), Core Curriculum Committee (member)

2006-07: T1/T2 task force (member), Calculus Committee (member), Engineering Math Committee (mem-

ber), Core Curriculum Committee (member)

Community Service: (by activity)

Science Olympiad: I hosted various events (Metric Mastery, Compute-This, Herpetology) in each of 2008, 2012, 2013, 2014, 2015, 2016 and co-hosted Technical Problem Solving event in 2009 and 2010.

Future Cities: I served as a judge or timer in each year from 2007 through 2013. This is a national competition for junior high school aged children.

Future Educators Event: I hosted or co-hosted the event *Keeping the fun in mathematics* in each of 2010, 2011, and 2012. This event was provided to area high school students interested in a career in teaching.

Earth Day (for Girl Scouts): I conducted an origami workshop in each year from 2008 through 2012 for girl scouts aged 6-12.

GRE Prep Session: I delivered a GRE preparatory session for the quantitative portion of the GRE in each of 2010, 2011, and 2012. This effort was carried out with various SPSU faculty as a service to students nearing graduation.

Volunteer Tutor: I have tutored adults seeking a GED working with CobbWorks and the Center for Family Resources each week (with occassional exceptions/holidays) from 2013 to the present.

Affiliations

Sigma Xi, Northwestern University Chapter (Student Member) 1998-2003
Sigma Xi, Member at Large 2008–present
American Mathematical Society, 2002-present
SIAM, 2002
Mathematical Association of America, 2006-present
Reviewer for the Journal of Applied Mathematics and Computing, 2009-present
Reviewer for Math Review (AMS), 2010-present
Reviewer for Journal Mathematics and Computers in Simulation, 2011-present

Referees

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Professor W.E. Olmstead
Department of Engineering Science and Applied Mathematics M450
Northwestern University
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Tel. 847-491-5396
E-mail weo@northwestern.edu

Professor V.A. Volpert
Department of Engineering Science and Applied Mathematics M452
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Professor J.R. Walton
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