



The 29th Annual
Southeastern-Atlantic Regional
Conference on Differential Equations
SEARCDE-29

MERCER UNIVERSITY

Macon
Campus

October 16-17, 2009

SEARCDE-29

The 29th Annual Southeastern-Atlantic Regional Conference is sponsored by:

The National Science Foundation

The Office of the Provost, Mercer University

The College of Liberal Arts, Mercer University

The Department of Mathematics, Mercer University

Atlas Conferences, Inc. (<http://atlas-conferences.com/>)

Plenary Speakers

Howard (Howie) Weiss

Georgia Institute of Technology

H.T. Banks

North Carolina State University

Irena Lasiecka

University of Virginia

Steering Committee for SEARCDE-29

Keith Howard, 2005-2009

Mercer University

Sarah Raynor, 2006-2009

Wakeforest University

Lizette Zietsman, 2006-2009

Virginia Tech

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Billur Kaymakalan, 2008-2011

Georgia Southern University

Katherine Ott 2008-2011

University of Kentucky

Local Organizing Committee

Keith Howard, Chair

Julie Beier

Jeff Denny

Friday, October 16th

1:45-2:10 PM *Opening Remarks*, SEB 110
Jeffrey Denny, Associate Dean of the College of Liberal Arts
Kedrick Hartfield, Chair of the Department of Mathematics

2:10-2:55 AM Open Discussion on Future Trends in the Area of Differential Equations

2:55-3:25 PM Coffee Break

3:25-5:00 PM Contributed Session 1A, SEB 143

3:25-3:45 PM *ON CONVERGENCE ALMOST EVERYWHERE OF SPHERICAL PARTIAL SUMS*, **Ravshan Ashurov**, Institute of Advanced Technology (ITMA), Universiti Putra Malaysia

4:15-4:35 PM *Reflection principles supported on a finite set*, **Ricardo Restrepo**, Georgia Institute of Technology

3:25-5:00 PM Contributed Session 1B, SEB 144

3:25-3:45 PM *Strongly damped wave equation with integral boundary conditions*, **Jaydev Dabas** MNNIT Allahabad-211004, India

3:50-4:10 PM *A meshless method of lines for numerical solution of the family of generalized fifth-order Korteweg-de Vries equations*, **Elham Negahdary**, University of Dayton

4:15-4:35 PM *Solving High Rank Lyapunov Equations with Model Reduction*, **Jeff Borggaard**, Interdisciplinary Center for Applied Mathematics, Virginia Tech

3:25-5:00 PM Contributed Session 1C, SEB 201

3:25-3:45 PM *A Multiplicity Result for a class of infinite positive problems*, **Eunkyung Ko**, Mississippi State University

4:15-4:35 PM *The Spectral Minimum of the Discrete Displacement Model*, **Roger Nichols, Jr.**, University of Alabama at Birmingham

3:25-5:00 PM Contributed Session 1D, SEB 202

3:50-4:10 PM *Strong Stability of a Nonlinear Fluid-Structure Interaction Model* , **Yongjin Lu** , University of Virginia

5:30 PM Trolley departure from Conference Site to the Anderson Conference Center

6:00 - 8:00 PM Reception
Trolley will travel between Conference Site, Hilton Garden Inn, and the Anderson Conference Center every half hour until 9:00

Saturday, October 17th

8:00-8:30 AM Coffee & Pastries

8:30-9:20 AM **Irena Lasiecka**, University of Virginia
*Well-posedness and long time behavior of finite energy solutions
corresponding to 2-D nonlinear dynamic elasticity*
SEB 110

9:20-9:30 AM Coffee Break

9:30-10:15 AM Contributed Session 2A, SEB 143

9:30-9:50 AM *Generalized Diamond-Alpha Opial Dynamic Inequalities* , **Bilur Kaymakçalan** , Georgia Southern University

9:55-10:15 AM *Spectral asymptotics of fractal Laplacians defined by iterated function systems with overlaps* , **Sze-Man Ngai** , Georgia Southern University

9:30-10:15 AM Contributed Session 2B, SEB 144

9:30-9:50 AM *Collinear Central Configurations in the n-body Problem with General Homogeneous Potential* , **Zhifu Xie**, Virginia State University

9:55-10:15 AM *Spectral properties of the matrix AKNS system and Schrödinger operators with complex potentials* , **Martin Klaus** , Virginia Tech,

9:30-10:15 AM Contributed Session 2C, SEB 201

9:30-9:50 AM *Generalized Eigenproblem and Nonlinear Elliptic Equations* , **Nsoki Mavinga** , University of Rochester, NY

9:55-10:15 AM *A mathematical model on the dynamics of phytoplankton and zooplankton prey-predator system*, **Xubo Wang** , Macon State College

9:30-10:15 AM Contributed Session 2D, SEB 202

9:55-10:15 AM *Dark optical solitons with power law nonlinearity and time-dependent coefficients* , **Anjan Biswas** , Delaware State University

10:25AM-12:00 Noon Contributed Session 3A, SEB 143

10:25-10:45 AM *A Model of Cell Growth and Reproduction* , **Sean Ellermeyer**, Kennesaw State University

10:50-11:10 AM *An Ecological Model with Grazing and Constant Yield Harvesting* , **Sarath Sasi**, Mississippi State University

11:15-11:35 AM *Computation of the H_∞ -Control Attenuation Parameter Using Sensitivity Analysis* , **Lizette Zietsman** , Virginia Tech

11:40-12:20 Noon *A model for the release of sterile mosquitoes* , **Seth F. Oppenheimer** , Mississippi State University

10:25AM-12:00 Noon Contributed Session 3B, SEB 144

- 10:50-11:10 AM *Discontinuous Galerkin Solution of the Nonlinear Tricomi Equation* , **Adrian Sescu** , University of Toledo
- 11:15-11:35 AM *Approximation for LQR Control of a Linear Delay Equation* , **Richard Fabiano** , University of North Carolina at Greensboro
- 11:40-12:20 Noon , **Jeff Denny**, Mercer University

10:25AM-12:00 Noon Contributed Session 3C, SEB 201

- 10:25-10:45 AM *Stability of traveling waves in nonlinear damped hyperbolic equations* , **Zachariah Sinkala** , Middle Tennessee State University
- 10:50-11:10 AM *Integral Invariants of a Nonlinear Nonholonomic Dynamical System in Poincare Parameters.*, **Muhammad Usman** , University of Dayton
- 11:15-11:35 AM *Bounded Solutions of Nonlinear Parabolic Equations in Unbounded Domains* , **M. N. Nkashama** , University of Alabama at Birmingham
- 11:40-12:20 Noon *Maxwell-Systems with Nonlinear Polarization Involving Probability Distributions* , **Younis Zaidan** , University of Wisconsin-Fox Valley

10:25AM-12:00 Noon Contributed Session 3D, SEB 202

- 10:25-10:45 AM *Almost Linear Volterra Integro-differential Equations and Integral Equations* , **Muhammad Islam** , University of Dayton
- 10:50-11:10 AM *Existence of Multiple Positive Solutions to Some Semipositone Systems* , **Sarah Raynor** , Wake Forest University
- 11:15-11:35 AM *Existence of Solutions for Singular Functional Differential Equations with Upper and Lower Solutions* , **Daniel C. Biles**, Belmont University
- 11:40-12:20 Noon *Existence and Nonexistence of Positive Solutions For a Class of Superlinear Semipositone Systems* , **Maya Chhetri** , UNC Greensboro

10:25AM-12:00 Noon Contributed Session 3E, SEB 140

- 10:25-10:45 AM *Fredholm Alternative Results for the Fucik Spectrum* , **Stephen Robinson** , Wake Forest University
- 10:50-11:10 AM *CHARACTERIZATION AND DISPERSIVE ORDERING OF THE CAUCHY, GAUSS AND LOGISTIC LAWS* , **Broderick O Oluyede** , Georgia Southern University

12:00-2:00 PM Lunch Break

2:00-2:50 PM **H.T. Banks**, Center for Research in Scientific Computation,
North Carolina State University
Two-Player Evasion-Interrogation Games with Uncertainty
SEB 110

2:50-3:00 PM Coffee Break

3:00-3:45 PM Contributed Session 4A, SEB 143

3:00-3:20 PM *Some Eigenvalue inequalities for Klein-Gordon operators*,
Selma Yildirim-Yolcu, Georgia Institute of Technology and
Georgia College & State University

3:25-3:45 PM *Modeling and analysis of system of differential equations for an
Electrical machine* , **Kumud Singh-Altmyer** , University of
Arkansas Little Rock

3:00-3:45 PM Contributed Session 4B, SEB 144

3:00-3:20 PM *Positive Solutions for Infinite Semipositone Problems with
Falling Zeros* , **Jinglong Ye** , Center for Computational Sci-
ences, HPCC, Mississippi State University

3:25-3:45 PM *Uniqueness and stability of determining coefficients of an inverse
hyperbolic problem* , **Shitao Liu**, University of Virginia

3:10-4:45 PM Contributed Session 4C, SEB 201

3:00-3:20 PM *On the existence of a double S-shaped bifurcation curve* ,
Jerome Goddard II , Mississippi State University

3:25-3:45 PM *Asymptotic behaviors of solutions to a class of quasilinear ellip-
tic equations with large diffusion* , **Chunshan Zhao** , Georgia
Southern University

3:00-3:45 PM Contributed Session 4D, SEB 202

3:00-3:20 PM *Computer Use in a Mathematical Physics World* , **Kevin Ko-
złowski** , University of Alabama at Birmingham

3:00-3:45 PM Contributed Session 4E, SEB 140

3:00-3:20 PM *Water Conservation in Georgia A Mathematical Study*, **Joshua
Du** , Kennesaw State University

3:25-3:45 PM *Bifurcation Analysis of a Kaldor-Kalecki Model of Business Cy-
cle with Time Delay*, **Liancheng Wang**, Kennesaw State Uni-
versity
