

34<sup>TH</sup> ANNUAL TEXAS DIFFERENTIAL EQUATIONS CONFERENCE  
UNIVERSITY OF TEXAS-PAN AMERICAN, EDINBURG TX  
MARCH 26-27, 2011

Program for Saturday, March 26 2011

LOCATION      MAGC 2.418

CHAired BY   *Lokenath Debnath*

08:30–08:40   **John Trant**

Welcome by the Dean of the College of Sciences and Mathematics

08:40–09:00   **Lokenath Debnath**

Welcome by the Chair of the Department of Mathematics

CHAired BY   *Dambaru Bhatta*

09:00–09:20   **Lokenath Debnath** (debnathl@utpa.edu)

*University of Texas-Pan American*

“Euler Equations and the KdV equation for the Gravity-Capillary Waves”

09:20–09:40   **Goong Chen** (gchen@math.tamu.edu)

*Texas A&M University*

“Computation and visualization of the nonlinear Schrödinger equation in non-linear optics by OpenFOAM”

Joint work with **Milivoj Belic** and **Alexey Sergeev**.

09:40–10:00   **Sergey Belov** (belov@rice.edu)

*Rice University*

“Riemann-Hilbert approach to the semiclassical focusing Nonlinear Schrödinger equation.”

10:00–10:20   **Tuoc Van Phan** (phan@math.utk.edu)

*University of Tennessee*

“Normal form for the symmetry-breaking bifurcation in the nonlinear Schrödinger equation”

10:20–10:40   *Coffee break* in MAGC 2.416

CHAired BY   *Eleftherios Gkioulekas*

10:40–11:00   **Mikhail Kovalyov** (mkovalyo@ualberta.ca)

*University of Alberta, Canada*

“Modeling rogue waves by means of solutions of KP.”

- 11:00–11:20 **Luan Hoang** (luan.hoang@ttu.edu)  
*Texas Tech University*  
 “Dynamics and Stabilities of Generalized Forchheimer Flows in Porous Media”
- 11:20–11:40 **José Santiago Cruz Bañuelos** (jose.santiago.cruz@udem.edu.mx)  
*Universidad de Monterrey*  
 “One solution of the Duffing Equation by using the Finite Element Method”
- 11:40–12:00 **George Omel’yanov** (omel@hades.mat.uson.mx)  
*University of Sonora, Mexico*  
 “Interaction of singularities and the uniqueness problem for quasilinear hyperbolic systems”
- 12:00–14:00 *Complimentary lunch at the University Dining Hall, in honor of the participants, will be provided by the UTPA Department of Mathematics.*
- CHAired BY *Paul Bracken*
- 14:00–14:20 **Katarina Jegdic** (JegdicK@uhd.edu)  
*University of Houston-Downtown*  
 “A free boundary problem for two-dimensional gas dynamics equations”
- 14:20–14:40 **Mufid Abudiab** (Mufid.abudiab@tamucc.edu)  
*Texas A&M University-Corpus Christi*  
 “The Lower Upper Solutions Method: Its Power and Limitations”
- 14:40–15:00 **Chris Trombley** (ctrombley@islander.tamucc.edu)  
*Texas A&M University-Corpus Christi*  
 “Exact Differential Equations in  $\mathbb{R}^n$ ”  
 Joint work with **Mufid Abudiab**, **Zulema Cervantes**, and **Andrew Hornbuckle**
- 15:00–15:20 **Joshua Benavidez** (jbenavidez@islander.tamucc.edu)  
*Texas A&M University-Corpus Christi*  
 “Use of the Routh Hurwitz method to study the stability of a system of differential equations”  
 Joint work with **Mufid Abudiab**, and **Christina Martinez**
- 15:20–15:40 *Coffee break in MAGC 2.416*
- CHAired BY *Guy Bernard*
- 15:40–16:00 **Ruediger Landes** (rlandes@ou.edu)

*University of Oklahoma*

“Stable and unstable initial configuration in the theory of wavefronts”

- 16:00–16:20 **Reza Ahangar** (kfra00@tamuk.edu)  
*Texas A&M University-Kingsville*  
 “Dynamic Behavior of Perturbed Nonlinear Operator Differential Equations”
- 16:20–16:40 **Martina Bukac** (martina@math.uh.edu)  
*University of Houston*  
 “Thin shell model capturing longitudinal displacement observed in human arteries”
- 16:40–17:00 **Sayantana Das** (sdas@broncs.utpa.edu)  
*University of Texas-Pan American*  
 “On temporal instability of electrically forced axisymmetric jets with variable applied field and nonzero basic state velocity”  
 Joint work with **Dambaru Bhatta** and **Daniel N. Riahi**
- 17:00–17:20 **Ranadhir Roy** (rroy@utpa.edu)  
*University of Texas-Pan American*  
 “Investigation of Characteristic of Chyme Flow during Gastrointestinal Endoscopy using Different Mathematical Models”  
 Joint work with **Fabiola Rios** and **Daniel N. Riahi**
- 17:20–17:40 **Sam Cavazos** (samcavazos@rocketmail.com)  
*University of Texas-Pan American*  
 “Modeling and computation of blood flow resistance of an atherosclerotic artery with multiple stenoses”  
 Joint work with **Ranadhir Roy** and **Daniel N. Riahi**
- 17:40–18:00 **Runchang Lin** (rlin@tamiu.edu)  
*Texas A&M International University*  
 “A balanced finite element method for singularly perturbed reaction-diffusion problems”  
 Joint work with **Martin Stynes**

## Program for Sunday, March 27 2011

LOCATION    MAGC 2.418

CHAired BY    *Constantin Onica*

08:10–08:30    **Yuliya Gorb** (gorb@math.uh.edu)  
*University of Houston*  
 “Blow up phenomena in high contrast composites”

08:30–08:50    **Natali Hritonenko** (nahritonenko@pvamu.edu)  
*Prairie View A&M University*  
 “Optimal Control of PDE and Integral Equations with Delay in Operations Research and Environmental Sciences”

08:50–09:10    **Maxim Zyskin** (maxim.zyskin@utb.edu)  
*University of Texas at Brownsville*  
 “Reinforcing polymer fibers”

09:10–09:30    **Ram Verma** (verma99@msn.com)  
*Texas A&M University - Kingsville*  
 “Generalized Frameworks for First-Order Evolution Inclusions Based on Yosida Approximations”

09:30–09:50    **Virgil Pierce** (virgilpierce@gmail.com)  
*University of Texas-Pan American*  
 “Differential equations for the enumeration of polygonal dissections”

09:50–10:10    *Coffee break* in MAGC 2.416

CHAired BY    *Virgil Pierce*

10:10–10:30    **Anahit Galstyan** (agalstyan@utpa.edu)  
*University of Texas-Pan American*  
 “Hyperbolic Equations in Einstein-de Sitter spacetime”  
 Joint work with **Tamotu Kinoshita** and **Karen Yagdjian**

10:30–10:50    **Karen Yagdjian** (yagdjian@utpa.edu)  
*University of Texas-Pan American*  
 “Fundamental Solutions for Hyperbolic Operators with Variable Coefficients”

10:50–11:10    **Ranis N. Ibragimov** (Ranis.Ibragimov@utb.edu)  
*University of Texas at Brownsville*

“Integration by quadratures of nonlinear Euler and Navier-Stokes equations modeling atmospheric motion”

- 11:10–11:30 **Eleftherios Gkioulekas** (gkioulekase@utpa.edu)  
*University of Texas-Pan American*  
“The effect of asymmetric large-scale dissipation on energy and potential enstrophy injection in two-layer quasi-geostrophic turbulence”  
Joint work with **Ka-Kit Tung**
- 11:30–11:50 **Paul Bracken** (bracken@panam.edu)  
*University of Texas-Pan American*  
“Deformation of Surfaces in Three-Dimensional Space Induced by Means of Various Integrable Systems”
- 11:50–12:10 **Dambaru Bhatta** (bhattad@utpa.edu)  
*University of Texas-Pan American*  
“Derivation of the Landau coefficients for convective flow in a mushy layer”  
Joint work with **Daniel Riahi**
- 12:10–12:30 **Tim Huber** (hubertj@utpa.edu)  
*University of Texas-Pan American*  
“Applications of a differential system to quintic Eisenstein series”