

Conference Program[†]

The 7th International Conference on Differential Equations and Dynamical Systems

15-18 December, 2010
University of South Florida, Tampa, Florida, USA

Conference at a glance

	15 Dec. (Wednesday)	16 Dec. (Thursday)	17 Dec. (Friday)	18 Dec. (Saturday)	Rooms	
7:30am-8:00am	Registration	Registration	Registration	Registration	MSC 2708	
8:00am-8:30am		PS	PS	PS		
8:30am-9:00am						OC
9:00am-10:00am						PS
	10:00am-10:15am Coffee Break					
10:15am-12:15pm	SS 6	SS 4	SS 1	SS 2 ^a	MSC 2708	
	SS 7	SS 6	SS 13	SS 3	MSC 3707	
	SS 15	SS 10	CS	SS 5 ^a	MSC 2709	
	12:15pm-2:00pm Lunch Break			12:45pm-2:00pm Lunch Break		
2:00pm-6:15pm	SS 4	SS 5, SS 14	SS 1		MSC 2708	
	SS 6	SS 10	SS 2		MSC 3707	
	SS 8	SS 12	SS 3		MSC 2709	
	SS 11	SS 13	SS 13		MSC 3709	
	4:00pm-4:15pm Coffee Break					
7:00pm-9:00pm	Reception		Banquet		GAC TH	

Note: ^aThe time period is 10:15am-12:45pm for those two special sessions on 18 Dec. (Saturday).

Abbreviations: OC - Opening Ceremony, PS - Plenary Session, SS - Special Session, CS - Contributed Session, MSC - Marshall Student Center, GAC - Gibbons Alumni Center, TH - Traditions Hall.

[†]The speakers are flagged with an asterisk (*) in this conference program.

List of Special Sessions

- SS 1:** “Recent Advances in Evolution Equations and Applications”
Organizers: G. N’Guérékata, G. P. Zhang, G. M. Mophou and V. Valmorin
- SS 2:** “Qualitative Properties and Applications of Functional Differential Equations”
Organizers: T. X. Wang and B. Zhang
- SS 3:** “Stochastic Analysis and Applications”
Organizers: S. Sathananthan and G. S. Ladde
- SS 4:** “Soliton Theory and Applications”
Organizer: J. S. He
- SS 5:** “Integrability and Nonintegrability in Hamiltonian Systems”
Organizer: M. Przybylska
- SS 6:** “Infinite Dimensional Dynamics and Applications”
Organizer: Y. You
- SS 7:** “Integrable Multi-Dimensional Quasilinear Systems of the 1st-Order and Related Topics”
Organizer: M. V. Pavlov
- SS 8:** “New Fundamental Aspects in Nonlinear Sciences”
Organizer: A. Yildirim
- SS 9:** “Reaction Diffusion Equations & Applications”
Organizers: J. A. Shahul-Hameed and R. Shivaji
Note: This special session has officially been canceled.
- SS 10:** “Mathematical Biology”
Organizer: P. Feng
- SS 11:** “Differential and Integral Equations in Engineering”
Organizers: S. Campbell and A. Z. Grinshpan
- SS 12:** “Symmetry Methods and Applications for Differential Equations”
Organizers: M. L. Gandarias and M. S. Bruzón
- SS 13:** “Integrable Systems: Discrete, Algebraic, and Geometric Aspects”
Organizers: A. Dzhamay, K. Maruno and F. Müller-Hoissen
- SS 14:** “Partial Differential Equations on Metric Spaces”
Organizer: T. Bieske
- SS 15:** “Partial Differential Equations from Fluid Mechanics”
Organizer: F. Tone

Conference Sponsors:

The National Science Foundation, USA

The Office of the Provost, University of South Florida

The Office of Research & Innovation, University of South Florida

The College of Arts and Sciences, University of South Florida

The Department of Mathematics and Statistics, University of South Florida

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Chairmen: Xinzhi Liu (Chairman, Canada), Wen-Xiu Ma (Co-Chairman, USA).

Members: Ravi P. Agarwal (USA), S. Ahmad (USA), N. U. Ahmed (Canada), Thomas Bieske (USA), Maria Santos Bruzón (Spain), Scott Campbell (USA), C. Y. Chan (USA), Anton Dzhamay (USA), Peng Feng (USA), Zhaosheng Feng (USA), Maria Luz Gandarias (Spain), Arcadii Z. Grinshpan (USA), Jingsong He (China), Jong Kyu Kim (South Korea), V. Lakshmikantham (USA), Gangaram S. Ladde (USA), Kunquan Lan (Canada), Kenichi Maruno (USA), Syed Tauseef Mohyud-Din (Pakistan), Gisèle M. Mophou (Guadeloupe, FWI), Folkert Müller-Hoissen (Germany), Gaston M. N'Guérékata (USA), Maxim V. Pavlov (Russia), Maria Przybylska (Poland), Sivapragasam Sathananthan (USA), Kok Lay Teo (Australia), Florentina Tone (USA), Vincent Valmorin (France), Tingxiu Wang (USA), Ahmet Yildirim (Turkey), Yuncheng You (USA), Bo Zhang (USA), Guoping Zhang (USA).

Local Organizing Committee:

Dr. Wen-Xiu Ma (Chairman), Email: mawx@cas.usf.edu

Dr. Sherwin Kouchekian (Co-Chairman), Email: skouchekian@usf.edu

Dr. Thomas Bieske, Email: tbieske@mail.usf.edu

Dr. Venkataraman Vanaja, Email: vvanaja2@usf.edu

Dr. Yuncheng You, Email: you@mail.usf.edu

Acknowledgements

We, the local organizers, would like to take this opportunity to thank all colleagues and students who contributed to this conference.

We are particularly grateful to our administrative specialist Beverly DeVine-Hoffmeyer, who assisted with all travel logistics and reimbursements through USF Travel department, and to our receptionist Mary Ann Wengyn for coordinating with the area hotels and pulling together information on shuttles and local restaurants. We also thank our college research administrator Sandy Justice for her constructive comments and guiding suggestions about almost every aspect of the conference. Special thanks to CAS Webmaster Michael Abrahams for beautifully crafted web designs, Staff Accountant Chad J. Walter in CAS Dean's Office for administering online payment transactions, and to Marketing Director Bob Fiallo in University Relations and Elise Thomas in the CAS Office of Research & Scholarship for reaching out to local vendors as well as USF Athletics, USF Continuing Education, the Temple Terrace Chamber of Commerce, and countless other donors who have contributed to the success of this valued international conference.

We also thank our research visitor Dr. Yaning Tang and graduate students Xianqi Li, Morgan McAnally, Bronson Travis, Junyi Tu, Yanling Xi and Mengshu Zhang of Department of Mathematics and Statistics for offering selfless and dedicated service to the conference.

The financial support from US National Science Foundation and University of South Florida is acknowledged and very much appreciated. Our thanks also go to all special session organizers, speakers and participants for their great interest and significant contributions to the conference! It would not have been possible to hold the 7th DEDS conference here at University of South Florida without the help and support we received.

The local organizing committee:

Dr. Wen-Xiu Ma (Chairman)

Dr. Sherwin Kouchekian (Co-Chairman)

Dr. Thomas Bieske

Dr. Venkataraman Vanaja

Dr. Yuncheng You

Wednesday December 15, 2010

Wednesday December 15, 2010, 8:00am-10:00am

Room 2708, 2nd Floor, Marshall Student Center

8:00am *Registration*

8:30am *Opening ceremony*

Plenary speech:

9:00am *Nonlinear waves: from beaches to lasers*

Mark J. Ablowitz*, University of Colorado at Boulder, USA

10:00am Coffee Break

Wednesday December 15, 2010, 10:15am-12:15pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 6: Infinite Dimensional Dynamics and Applications (1/3)

Organizer: **Yuncheng You**, University of South Florida, USA

10:15am *The cone property for parabolic partial differential equations*

Minkyu Kwak*, Chonnam National University, South Korea

10:45am *Multiple constant sign and nodal solutions for nonlinear Neumann eigenvalue problems*

Nikolas S. Papageorgiou*, National Technical University, Greece

11:15am *On semigroups with scaling invariance*

Yasunori Maekawa*, Kobe University, Japan

11:45am *Upper semicontinuity of global attractor for a two-dimensional non-Newtonian fluid*

Caidi Zhao*, Wenzhou University, P.R. China

Wednesday December 15, 2010, 10:15am-11:15am

Room 3707, 3rd Floor, Marshall Student Center

Special Session 7: Integrable Multi-Dimensional Quasilinear Systems of the First-Order and Related Topics

Organizer: **Maxim V. Pavlov**, P. N. Lebedev Physical Institute, Russia

10:15am *Wave breaking in Ostrovsky-Hunter equation*

Dmitry Pelinovsky*, McMaster University, Canada

10:45am *Integrable Hamiltonian hydrodynamic chains associated with Dorfman Poisson brackets*

Maxim V. Pavlov*, P.N. Lebedev Physical Institute, Russia

Wednesday December 15, 2010, 10:15am-11:45am

Room 2709, 2nd Floor, Marshall Student Center

Special Session 15: Partial Differential Equations from Fluid Mechanics

Organizer: **Florentina Tone**, University of West Florida, USA

10:15am *Boundary layers for the linearized Navier-Stokes equations in a curved domain*

Gung-Min Gie*, University of California at Riverside, USA

Makram Hamouda, Faculty of Sciences of Bizerte, Tunisia

Roger Temam, Indiana University, USA

10:45am *Mathematical methods for modeling of lightning and thunderstorm electrification*

Beyza Aslan*, University of North Florida, USA

11:15am *On the long-time H^1 -stability of the implicit Euler scheme for the 2d thermo-hydraulics equations*

Florentina Tone*, University of West Florida, USA

12:15pm Lunch Break

Wednesday December 15, 2010, 2:00pm-6:15pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 4: Soliton Theory and Applications (1/2)

Organizer: **Jingsong He**, Ningbo University, P.R. China

2:00pm *Bidifferential calculus and soliton equations*

Folkert Müller-Hoissen*, Max-Planck-Institute for Dynamics and Self-Organization, Germany

2:30pm *On the continuous limits and integrability of a coupled semidiscrete mKdV system*

Zuo-nong Zhu*, **Hai-qiong Zhao**, Shanghai Jiao Tong University, P.R. China

3:00pm *Higher order Miles theory of shallow water waves*

Yuhan Jia*, Ohio State University, USA

3:30pm *Explicit flow equations and recursion operator of the ncKP hierarchy*

Junyi Tu*, University of South Florida, USA

Jingsong He, **Xiaodong Li**, **Lihong Wang**, Ningbo University, P.R. China

4:00pm Coffee Break

4:15pm *On the determinant solution to the Cauchy problem for the KdV equation with a general step-like initial data*

Alexei Rybkin*, University of Alaska Fairbanks, USA

4:45pm *Wronskian determinant solutions of the (3+1)- dimensional Jimbo-Miwa equation*

Yaning Tang*, **Wen-Xiu Ma**, University of South Florida, USA

Wei Xu, Northwestern Polytechnical University, P.R. China

5:15pm *Exact solutions for an N -dimensional Hamiltonian system*

Jinshun Zhang*, Huaqiao University, P.R. China

5:45pm *Rogue wave solution for the variable coefficient nonlinear Schrödinger type equation*

Jingsong He*, Ningbo University, P.R. China

Wednesday December 15, 2010, 2:00pm-6:15pm

Room 3707, 3rd Floor, Marshall Student Center

Special Session 6: Infinite Dimensional Dynamics and Applications (2/3)

Organizer: **Yuncheng You**, University of South Florida, USA

2:00pm *Universality of Fibonacci patterns*

Zhiying Sun*, University of California-Irvine, USA

2:30pm *An application of global attractors in spatial ecology: how to predict the success of intervention against invasive species*

Juan B. Gutierrez*, Ohio State University, USA

3:00pm *A determining form for the 2-D Navier-Stokes equations*

Michael Jolly*, Indiana University, USA

3:30pm *Decay estimates for quasi-linear evolution equations*

Albert Milani*, University of Wisconsin-Milwaukee, USA

4:00pm Coffee Break

4:15pm *Stabilization of nonautonomous parabolic linear and nonlinear equations*

Anibal Rodriguez-Bernal*, Universidad Complutense-Madrid, Spain

4:45pm *Sufficient conditions for the regularity problems of the 3D Navier-Stokes equations*

Chongsheng Cao*, Florida International University, USA

5:15pm *Post-transition dynamics of reaction-diffusion models in connection with heart disease problems*

Masoud Yari*, Indiana University, USA

5:45pm *Integrable discretizations and solitons of KdV and mKdV equations*

Yi Zhang*, Zhejiang Normal University, P.R. China

Wednesday December 15, 2010, 2:00pm-6:15pm

Room 2709, 2nd Floor, Marshall Student Center

Special Session 8: New Fundamental Aspects in Nonlinear Sciences

Organizer: **Ahmet Yildirim**, Ege University, Turkey

2:00pm *The Boubaker polynomials expansion scheme for solving nonlinear science problems*

Ahmet Yildirim*, Ege University, Turkey

2:30pm *Application of Exp-function method to the (2+1)d Zakharov-Kuznetsov equation*

Zehra Pinar*, **Ahmet Yildirim**, Ege University, Turkey

3:00pm *Reliable analysis for the peristaltic transport of an incompressible viscous fluid in an asymmetric channel under the effect of transverse magnetic field with slip boundary conditions*

Ali Konuralp*, Celal Bayar University, Turkey

Ahmet Yildirim, Ege University, Turkey

3:30pm *Numerical simulation of Burgers' and good Boussinesq equations using HPM-Pade technique*

Canan Ünlü*, Istanbul University, Turkey

Ahmet Yildirim, Ege University, Turkey

- 4:00pm Coffee Break
- 4:15pm *Analytical solutions of nonlinear fractional differential equations using variational iteration method*
Hossein Jafari*, University of Mazandaran, Iran
- 4:45pm *On the fourth order of accuracy difference scheme for the Bitsadze-Samarskii type nonlocal boundary value problem*
Elif Öztürk*, Uludağ University, Turkey
- 5:15pm *Homotopy analysis method for the solution of a generalized Burgers-Fisher equation*
Uğur Yücel*, Pamukkale University, Turkey
- 5:45pm *An efficient numerical algorithm for solving nonlinear integro-differential equations*
Ahmet Yildirim*, Ege University, Turkey

Wednesday December 15, 2010, 2:00pm-5:45pm

Room 3709, 3rd Floor, Marshall Student Center

Special Session 11: Differential and Integral Equations in Engineering

Organizers: **Scott Campbell, Arcadii Z. Grinshpan**, University of South Florida, USA

- 2:00pm *A new trajectory generation and tracking control design for nonholonomic mobile robots using complex potentials*
Jing Wang*, **Morrison S. Obeng**, **Xiaohe Wu**, Bethune-Cookman University, USA
- 2:30pm *An expert system for partial differential equations*
Arthur Snider*, University of South Florida, USA
Sami Kadamani, Hillsborough Community College, USA
- 3:00pm *Multi-scale structural mechanics for advanced aircraft design*
Daniel Simkins*, University of South Florida, USA
- 3:30pm *Convolutions and integro-differential inequalities*
Arcadii Z. Grinshpan*, University of South Florida, USA
- 4:00pm Coffee Break
- 4:15pm *Applications of general inequalities to some engineering problems*
Jonathan Burns*, University of South Florida, USA
- 4:45pm *Equation of state mixing rules for gas and liquid mixtures*
Scott Campbell*, University of South Florida, USA
- 5:15pm *Use of numerical differential equations in biomorphic robotics*
Mayur Palankar*, University of South Florida, USA

Thursday December 16, 2010

Thursday December 16, 2010, 8:00am-10:00am

Room 2708, 2nd Floor, Marshall Student Center

Plenary speeches:

8:00am *Theory and application of model equations for water waves*

Jerry Bona*, University of Illinois at Chicago, USA

9:00am *Fokker-Plank equations for a free energy functional or Markov process on a graph*

Shui-Nee Chow*, Georgia Institute of Technology, USA

10:00am Coffee Break

Thursday December 16, 2010, 10:15am-12:15pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 4: Soliton Theory and Applications (2/2)

Organizer: **Jingsong He**, Ningbo University, P.R. China

10:15am *Bosonizations, Fermionizations and dark parameterizations*

Sen-Yue Lou*, Ningbo University, P.R. China

10:45am *Separable Hamiltonian systems as a source of (old and new) solutions of soliton equations*

Krzysztof Marciniak*, Linköping University, Sweden

11:15am *New integrable couplings of evolution equations hierarchies with self-consistent sources*

Tiecheng Xia*, Shanghai University, P.R. China

11:45am *Solutions of bigraded Toda hierarchy*

Chuanzhong Li*, Ohio State University, USA

Thursday December 16, 2010, 10:15am-12:15pm

Room 3707, 3rd Floor, Marshall Student Center

Special Session 6: Infinite Dimensional Dynamics and Applications (3/3)

Organizer: **Yuncheng You**, University of South Florida, USA

10:15am *A nonlocal equation arising from a travelling wave problem*

Jose M. Arrieta*, Universidad Complutense, Spain

10:45am *On the longtime dynamics of the Trojan Y Chromosome model*

Rana D. Parshad*, Clarkson University, USA

11:15am *Rational decay rates for fluid structure interaction PDE models*

George Avalos*, University of Nebraska-Lincoln, USA

11:45am *Problem on minimum wave speed of traveling waves for a Lotka-Volterra competition model*

Wenzhang Huang*, University of Alabama-Huntsville, USA

Thursday December 16, 2010, 10:15am-12:15pm

Room 2709, 2nd Floor, Marshall Student Center

Special Session 10: Mathematical Biology (1/2)

Organizer: **Peng Feng**, Florida Gulf Coast University, USA

10:15am *Modeling dominance-thermal tolerance trade-offs in ant communities*

Sharon Bewick*, University of Tennessee, USA

10:45am *A spatial model of tumor-host interaction: application of chemotherapy*

Alexandra Anderson*, Moffitt Cancer Center, USA

11:15am *Spreading speed and traveling waves of a model arising from epidermal wound healing*

Haiyan Wang*, Arizona State University, USA

11:45am *Mathematical analysis of the transmission dynamics of bovine tuberculosis model*

Folashade B. Augusto*, **S. Lenhart**, University of Tennessee, USA

A. B. Gumel, University of Manitoba, Canada

A. Odoi, University of Tennessee, USA

12:15pm Lunch Break

Thursday December 16, 2010, 2:00pm-4:00pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 5: Integrability and Nonintegrability in Hamiltonian Systems (1/2)

Organizer: **Maria Przybylska**, N. Copernicus University, Poland

2:00pm *Non-integrability of the Painlevé V equation as a Hamiltonian system and stokes phenomenon*

Tsvetana L. Stoyanova*, Sofia University, Bulgaria

2:30pm *Necessary conditions for integrability and super-integrability of Hamiltonian systems with homogeneous potential*

Haruo Yoshida*, National Astronomical Observatory of Japan, Japan

3:00pm *Non-integrability and partial non-integrability of the three body problem*

Andrzej J. Maciejewski*, University of Zielona Góra, Poland

3:30pm *Dispersive quantization*

Peter J. Olver*, University of Minnesota, USA

4:00pm Coffee Break

Thursday December 16, 2010, 4:15pm-5:45pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 14: Partial Differential Equations on Metric Spaces

Organizer: **Thomas Bieske**, University of South Florida, USA

4:15pm *A look at the bv space as an extension of the $(1, 1)$ -Newtonian space in metric measure spaces*

Chris Camfield*, Hendrix College, USA

- 4:45pm *Lipschitz control of geodesics in the Heisenberg group*
Robert Berry*, Sandia National Laboratories, USA
- 5:15pm *p-harmonious functions with drift*
Alexander Sviridov*, University of Pittsburgh, USA

Thursday December 16, 2010, 2:00pm-5:15pm

Room 3707, 3rd Floor, Marshall Student Center

Special Session 10: Mathematical Biology (2/2)

Organizer: **Peng Feng**, Florida Gulf Coast University, USA

- 2:00pm *Antibiotic treatment of bacterial biofilms*
Nick Cogan*, Florida State University, USA
- 2:30pm *Mathematical model of biofilm induced calcite precipitation*
Tianyu Zhang*, Montana State University at Bozeman, USA
- 3:00pm *Multi-scale mathematical modeling for combinatorial control of DNA transcription*
Chichia Chiu*, Michigan State University, USA
- 3:30pm *A model of dopaminergic neuronal dynamics within the VTA: a framework for studying nicotinic effects on burst firing*
Andrew Oster*, Ecole Normale Supérieure, France
- 4:00pm Coffee Break
- 4:15pm *A universal pattern of activity in developing neural networks*
Joel Tabak*, Florida State University, USA
- 4:45pm *An ODE model for the accumulation of collagen during the wound healing process*
Angela Reynolds*, Virginia Commonwealth University, USA

Thursday December 16, 2010, 2:00pm-5:15pm

Room 2709, 2nd Floor, Marshall Student Center

Special Session 12: Symmetry Methods and Applications for Differential Equations

Organizers: **Maria L. Gandarias, Maria S. Bruzón**, Universidad de Cádiz, Spain

- 2:00pm *Symmetry applications for debris flow models*
Carmen Mineo, M. Torrisi*, University of Catania, Italy
- 2:30pm *Kelvin's matrix via Lie group method*
Rita Tracinà*, University of Catania, Italy
- 3:00pm *Symmetry reductions and travelling wave solutions for a higher order wave equation of the KdV type*
Maria Luz Gandarias*, Maria Santos Bruzón, Universidad de Cádiz, Spain
- 3:30pm *Exact solutions for a generalized Benjamin-Bona-Mahony equation*
Maria Santos Bruzón*, Maria Luz Gandarias, Universidad de Cádiz, Spain
- 4:00pm Coffee Break
- 4:15pm *Approximate symmetries for nonlinear viscoelastic media*
Antonino Valenti*, University of Catania, Italy
- 4:45pm *λ -Symmetries and solvable structures*
Concepcion Muriel*, J. L. Romero, Universidad de Cádiz, Spain

Thursday December 16, 2010, 2:00pm-5:45pm

Room 3709, 3rd Floor, Marshall Student Center

Special Session 13: Integrable Systems: Discrete, Algebraic & Geometric Aspects (1/3)

Organizers: **Anton Dzhamay**, University of Northern Colorado, USA
 Kenichi Maruno, University of Texas-Pan American, USA
 Folkert Müller-Hoissen, Max-Planck-Institute for Dynamics and
 Self-Organization, Germany

2:00pm *Line-solitons of KP II and chord diagrams*

Sarbarish Chakravarty*, University of Colorado at Colorado Springs, USA

2:30pm *A tropical approach to KP line soliton combinatorics*

Aristophanes Dimakis, University of the Aegean, Greece;

Folkert Müller-Hoissen*, Max-Planck-Institute for Dynamics and Self-Organization,
Germany

3:00pm *Soliton webs and triangulations of polygons*

Yuji Kodama*, Ohio State University, USA

3:30pm *Tropical determinants and soliton solutions of $(2 + 1)$ -dimensional ultradiscrete
soliton equations*

Kenichi Maruno*, University of Texas-Pan American, USA

4:00pm Coffee Break

4:15pm *Ultradiscretizing for some determinants*

Hidetomo Nagai*, Waseda University, Japan

4:45pm *Max-plus analysis of digital particle systems*

Daisuke Takahashi*, Waseda University, Japan

5:15pm *Elliptic modular double of sl_n and corresponding solvable Euclidean field theory*

Sergey Sergeev*, Australian National University, Australia

Friday December 17, 2010

Friday December 17, 2010, 8:00am-10:00am

Room 2708, 2nd Floor, Marshall Student Center

Plenary speeches:

8:00am *Inverse problem of KP solitons and applications to solitary wave interactions in shallow water*

Yuji Kodama*, Ohio State University, USA

9:00am *The Grunsky operator, Ahlfors' question and geometry of the universal Teichmüller space*

Samuel Krushkal*, Bar-Ilan University, Israel; University of Virginia, USA

10:00am Coffee Break

Friday December 17, 2010, 10:15am-12:15pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 1: Recent Advances in Evolution Equations and Applications (1/2)

Organizers: **Gaston N'Guérékata and Guoping Zhang**, Morgan State University, USA; **Gisèle M. Mophou and Vincent Valmorin**, Université des Antilles et de La Guyane, Guadeloupe (FWI)

10:15am *Stability of solutions to integro-differential equations in Hilbert spaces*

Ti-Jun Xiao*, Fudan University, P.R. China

10:45am *On Stepanov-like (pseudo) almost automorphic functions*

Jin Liang*, Shanghai Jiao Tong University, P.R. China

11:15am *Bifurcation problem of the discrete nonlinear Schrödinger equations with unbounded potentials*

Guoping Zhang*, Morgan State University, USA

11:45am *Almost automorphic solutions for equation with piecewise constant argument*

William Dimbour*, Université des Antilles et de la Guyane, Guadeloupe (FWI)

Friday December 17, 2010, 10:15am-12:15pm

Room 3707, 3rd Floor, Marshall Student Center

Special Session 13: Integrable Systems: Discrete, Algebraic & Geometric Aspects (2/3)

Organizers: **Anton Dzhamay**, University of Northern Colorado, USA
Kenichi Maruno, University of Texas-Pan American, USA
Folkert Müller-Hoissen, Max-Planck-Institute for Dynamics and Self-Organization, Germany

10:15am *A classification of two dimensional integrable mappings and rational elliptic surfaces*

A. S. Carstea, National Institute of Physics and Nuclear Engineering, Romania

T. Takenawa*, Tokyo University of Marine Science and Technology, Japan

- 10:45am *A systematic method for generating new integrable systems via inverse Miura maps*
Takayuki Tsuchida*, Okayama Institute for Quantum Physics, Japan
- 11:15am *UC hierarchy and monodromy preserving deformation*
Teruhisa Tsuda*, Kyushu University, Japan
- 11:45am *On bi-Hamiltonian deformations of equations of hydrodynamic type*
Alessandro Arsie*, University of Toledo, USA

Friday December 17, 2010, 10:15am-12:15pm

Room 2709, 2nd Floor, Marshall Student Center

Contributed Session: Differential Equations and Applications

Chair: **Sherwin Kouckekian**, University of South Florida, USA

- 10:15am *On chaos synchronization of two nonlinear gyroscope systems with and without a periodical disturbance*
Fuhong Min, Albert C. J. Luo*, Southern Illinois University, USA
- 10:45am *Semilinear schrödinger equation with a magnetic potential*
Shijun Zheng*, Georgia Southern University at Statesboro, USA
- 11:15am *An integrable system from complex geometry*
Alex Castro*, University of Toronto, Canada
- 11:45am *A simple time-dependent Hamiltonian system with piecewise constant acceleration*
Mohammadreza Ghasemi*, Vadim Zharnitsky, Tamas Kalmar-Nagy,
 Texas A&M University, USA

12:15pm Lunch Break

Friday December 17, 2010, 2:00pm-6:15pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 1: Recent Advances in Evolution Equations and Applications (2/2)

Organizers: **Gaston N'Guérékata and Guoping Zhang**, Morgan State University, USA; **Gisèle M. Mophou and Vincent Valmorin**, Université des Antilles et de La Guyane, Guadeloupe (FWI)

- 2:00pm *Neutral systems on Banach spaces controlled by vector measures*
Nasir Uddin Ahmed*, University of Ottawa, Canada
- 2:30pm *Measure of noncompactness and nondensely defined semilinear functional differential equations with fractional order*
Gaston N'Guérékata*, Morgan State University, USA
- 3:00pm *Global and blow-up solution in a mutualistic model*
Peng Feng*, Florida Gulf Coast University, USA
- 3:30pm *On the mild solutions to complete, higher order differential equations on Banach spaces*
Lan Nguyen*, Western Kentucky University, USA

- 4:00pm Coffee Break
- 4:15pm *Copula and tomography*
Doriano-Boris Pougaza*, University of Paris-Sud 11, France
- 4:45pm *Non classical solution to a linear second order ODE*
Vincent S. Valmorin*, Université des Antilles et de la Guyane, Guadeloupe (FWI)
- 5:15pm *Local smoothing effect and existence for the one-phase Hele-Shaw problem*
Xuming Xie*, Morgan State University, USA
- 5:45pm *Optimal control of fractional diffusion equation*
Gisèle Mophou*, Université des Antilles et de la Guyane, Guadeloupe (FWI)

Friday December 17, 2010, 2:00pm-6:15pm

Room 3707, 3rd Floor, Marshall Student Center

Special Session 2: Qualitative Properties and Applications of Functional Differential Equations (1/2)

Organizers: **Tingxiu Wang**, Missouri Western State University, USA
Bo Zhang, Fayetteville State University, USA

- 2:00pm *A periodic system dependent on parameters*
Min He*, Kent State University at Trumbull, USA
- 2:30pm *Blow-up in a subdiffusive medium with advection*
W. E. Olmstead, Northwestern University, USA
Colleen M. Kirk*, California Polytechnic State University, USA
C. A. Roberts, College of the Holy Cross, Worcester, USA
- 3:00pm *Optimal control of generalized Bolza problem for semilinear evolution inclusions*
Dong Wang*, Fayetteville State University, USA
- 3:30pm *Stability analysis of neutral functional differential equations and their numerical discretization*
Wansheng Wang*, Changsha University of Science and Technology, P.R. China
- 4:00pm Coffee Break
- 4:15pm *Runge-Kutta methods for nonlinear fractional differential equation*
Xuenian Cao*, Xiangtan University, P.R. China
- 4:45pm *Recent advances in B-theory of Runge-Kutta methods for nonlinear stiff Volterra functional differential equations*
Shoufu Li*, Xiangtan University, P.R. China
- 5:15pm *Singular perturbation to a class of third order partial differential equations having hyperbolic type limit equations*
Surong Lin*, Fujian Radio and TV University, P.R. China
- 5:45pm *On the linearization problem for neutral equations with state-dependent delays*
Hans-Otto Walther*, Universität Giessen, Germany

Friday December 17, 2010, 2:00pm-6:15pm

Room 2709, 2nd Floor, Marshall Student Center

Special Session 3: Stochastic Analysis and Applications (1/2)

Organizers: **Sivapragasam Sathananthan**, Tennessee State University, USA
 Gangaram S. Ladde, University of South Florida, USA

- 2:00pm *Hybrid dynamic inequalities and applications*
 Gangaram S. Ladde*, University of South Florida, USA
- 3:00pm *Stability of solutions of neutral SPDEs*
 Govindan Trivellore*, Instituto Politecnico Nacional, Mexico
- 3:30pm *Two-scale network dynamic human epidemic model*
 Divine Wanduku*, University of South Florida, USA
- 4:00pm Coffee Break
- 4:15pm *Existence of square mean almost periodic mild solutions to non-autonomous stochastic differential equations*
 Paul Bezandry*, Howard University, USA
- 4:45pm *Existence and uniqueness of solutions for fractional SDEs driven by martingales*
 Jinghan Meng*, University of South Florida, USA
- 5:15pm *Derivation of stochastic correlated random walk models*
 Ummugul Bulut*, Texas Tech University, USA
- 5:45pm *Stochastic dynamical model for photosynthesis*
 Tadesse Zerihun*, University of South Florida, USA

Friday December 17, 2010, 2:00pm-5:15pm

Room 3709, 3rd Floor, Marshall Student Center

Special Session 13: Integrable Systems: Discrete, Algebraic & Geometric Aspects (3/3)

Organizers: **Anton Dzhamay**, University of Northern Colorado, USA
 Kenichi Maruno, University of Texas-Pan American, USA
 Folkert Müller-Hoissen, Max-Planck-Institute for Dynamics and
 Self-Organization, Germany

- 2:00pm *A discretization of the generalized Weierstrass representation*
 Dmitry Zakharov*, Stony Brook University, New York, USA
- 2:30pm *On symplectic forms in the soliton theory*
 Fedor Soloviev*, University of Toronto, Canada
- 3:00pm *Combinatorics of eigenvectors of rational matrix functions and applications*
 Anton Dzhamay*, University of Northern Colorado, USA
- 3:30pm *Discrete integrable systems and their Lagrangian formulation*
 Pavlos Xenitidis*, University of Leeds, UK
- 4:00pm Coffee Break
- 4:15pm *Cauchy biorthogonal polynomials and discrete integrable systems*
 Hiroshi Miki*, Kyoto University, Japan
- 4:45pm *Linear regression models and discrete integrable systems*
 Hiroto Sekido*, Kyoto University, Japan

Saturday December 18, 2010

Saturday December 18, 2010, 8:00am-10:00am

Room 2708, 2nd Floor, Marshall Student Center

Plenary speeches:

8:00am *The symmetry studies of partial differential equations and its applications in atmospheric and oceanic dynamics*

Sen-Yue Lou*, Ningbo University, P.R. China

9:00am *A brief survey of recent developments on control and filter theory on infinite dimensional Banach spaces*

Nasir Uddin Ahmed*, University of Ottawa, Canada

10:00am Coffee Break

Saturday December 18, 2010, 10:15am-12:45pm

Room 2708, 2nd Floor, Marshall Student Center

Special Session 2: Qualitative Properties and Applications of Functional Differential Equations (2/2)

Organizers: **Tingxiu Wang**, Missouri Western State University, USA

Bo Zhang, Fayetteville State University, USA

10:15am *Direct fixed point mapping and periodic solutions of neutral functional differential equations*

Bo Zhang*, Fayetteville State University, USA

10:45am *Neutral delay equations of advanced type and periodic solutions*

Muhammad Islam*, University of Dayton, USA

11:15am *Monotonicity and asymptotic behavior of solutions for nonlinear differential equations of second order*

Lianwen Wang*, University of Central Missouri, USA

11:45am *Global mathematical analysis of an HIV infection model with full logistic growth and saturation incidence*

Liancheng Wang*, Kennesaw State University, USA

12:15pm *Inequalities of functional differential equations by Lyapunov's second method*

Tim Miller, Tingxiu Wang*, Missouri Western State University, USA

Saturday December 18, 2010, 10:15am-12:15pm

Room 3707, 3rd Floor, Marshall Student Center

Special Session 3: Stochastic Analysis and Applications (2/2)

Organizers: **Sivapragasam Sathananthan**, Tennessee State University, USA

Gangaram S. Ladde, University of South Florida, USA

10:15am *Robust control of stochastic systems with noise dependent states and inputs under Markovian switching*

Michael Knap*, Tennessee State University, USA

- 10:45am *Robust stability and stabilization of a class of non-linear discrete-time stochastic systems with state and controller dependent noise*
Andre Strong*, Tennessee State University, USA
- 11:15am *Stochastic models in epidemiology*
S. Sathananthan, I. Lyatuu*, Tennessee State University, USA
- 11:45am *Stochastic switching systems: stability and control*
Sivapragasam Sathananthan*, Tennessee State University, USA

Saturday December 18, 2010, 10:15am-12:45pm

Room 2709, 2nd Floor, Marshall Student Center

Special Session 5: Integrability and Nonintegrability in Hamiltonian Systems (2/2)

Organizer: **Maria Przybylska**, N. Copernicus University, Poland

- 10:15am *Superintegrability in classical and quantum mechanics*
Pavel Winternitz*, Université de Montréal, Canada
- 10:45am *Reduction of symmetries of hamiltonian systems*
Jedrzej Sniatycki*, University of Calgary, Canada
- 11:15am *Superintegrability in classical and quantum Hamiltonian systems*
Willard Miller Jr.*, University of Minnesota, USA
Ernie G. Kalnins, University of Waikato, New Zealand
Jonathan M. Kress, University of New South Wales, Australia
George S. Pogosyan, Yerevan State University, Armenia
- 11:45am *Integrability of homogeneous differential systems*
Lanouar Lazrag*, Ecole Normale Supérieure de Lyon, France
- 12:15pm *Searching for integrable perturbations of integrable homogeneous potentials*
Maria Przybylska*, N. Copernicus University, Poland
- 12:45pm Lunch Break

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