

Monday, July 2**16:00PM-18:30PM****Parallel Session 6**

Special Session 2	Nonlinear Evolution PDEs and Interfaces in Applied Sciences Organizer(s): Gunduz Caginalp, Maurizio Grasselli, Alain Miranville	Location GRC-A
16:00-16:30	Günther Grün (University of Erlangen-Nuernberg, Germany) On thermodynamically consistent schemes for two-phase flow with mass density contrast and species transport	Abstracts p. 9
16:30-17:00	Michele Coti Zelati (Indiana University, USA) Approximation of multivalued attractors and applications to the Navier-Stokes equations	Abstracts p. 8
17:00-17:30	Brice Doumbe (Universite de Poitiers, France) Attractors for a Caginalp phase-field model type on the whole space R^3	Abstracts p. 8
17:30-18:00	Haydi Israel (Poitiers University, France) A fourth order Cahn-Hilliard type equation	Abstracts p. 9
18:00-18:30	Irena M Lasiacka (University of Virginia, USA) Wellposedness of finite energy solutions ton supersonic flow structure interactions	Abstracts p. 10

Special Session 3	Mathematics of Social Systems Organizer(s): Andrea Bertozzi	Location GRC-B
16:00-16:30	Martin B Short (UCLA, USA) Social interactions on networks: self-excitation, third-party inhibition, and the link with game theory	Abstracts p. 15
16:30-17:00	Scott McCalla (UCLA, USA) Paladins as predators: Invasive waves in a spatial evolutionary adversarial game	Abstracts p. 14
17:00-17:30	Yves van Gennip (University of California, Los Angeles, USA) Community detection among street gangs and Gamma-convergence on graphs	Abstracts p. 16
17:30-18:00	Kristina Lerman (USC Information Sciences Institute, USA) Rethinking Network Analysis: Topology, Dynamics and Network Structure	Abstracts p. 13

Special Session 14	Mathematical Models in Biology and Medicine Organizer(s): Yang Kuang, Bingtuan Li, Jiaxu Li, Andrew Nevai	Location GRC-C
16:00-16:30	Lih-Ing W Roeger (Texas Tech University, USA) Dynamically Consistent Discrete-time SI, SIS, and SIR Epidemic Models	Abstracts p. 64
16:30-17:00	Abdessamad Tridane (ASU, USA) Epidemic model as controlled switched system	Abstracts p. 64
17:00-17:30	Ana Vivas-Barber (Adams State College, USA) Integro-Differential Age-Structured System for the SAIQR Influenza Model	Abstracts p. 65
17:30-18:00	Sarah Hews (Hampshire College, USA) Mathematical models of immunological tolerance and immune activation following prenatal infection with hepatitis B virus	Abstracts p. 61

Special Session 15	Nonlinear Evolution Equations, Inclusions and Related Topics Organizer(s): Mitsuharu Otani, Tohru Ozawa, N. U. Ahmed, S. Migorski, I. I. Vrabie	Location GRC-G
16:00-16:30	Kazuo Kobayasi (Waseda University, Japan) Well-posedness for anisotropic degenerate parabolic equations with non-homogeneous boundary conditions	Abstracts p. 68
16:30-17:00	Masahiro Kubo (Nagoya Institute of Technology, Japan) A new class of nonlinear evolution equations	Abstracts p. 68
17:00-17:30	Goro Akagi (Kobe University, Japan) Doubly nonlinear parabolic equations with variable exponents	Abstracts p. 66
17:30-18:00	Shun Uchida (Waseda University, Japan) Periodic solutions of some double-diffusive convection systems based on Brinkman-Forchheimer equation	Abstracts p. 71

Special Session 20	Stochastic-Statistical Modeling of Climate Organizer(s): Dimitris Giannakis, John Harlim, Andrew Majda	Location REH-4
16:00-16:30	Dimitrios Giannakis (New York University, USA) Quantifying Long-Range Predictability and Model Error through Data Clustering and Information Theory	Abstracts p. 89
16:30-17:00	Grant Branstator (NCAR, USA) Using Stochastic Models to Diagnose the Origins of Leading Atmospheric Zonal Modes	Abstracts p. 88
17:00-17:30	Samuel Stechmann (University of Wisconsin-Madison, USA) A stochastic model for tropical rainfall and extreme events	Abstracts p. 91
17:30-18:00	Omar M Knio (Duke University, USA) Sparse Adaptive Polynomial Chaos Representations for Ocean General Circulation Models	Abstracts p. 90

Special Session 21	Dynamical Systems and Spectral Theory Organizer(s): David Damanik	Location REH-2
16:00-16:30	Thomas Chen (University of Texas at Austin, USA) Derivation of NLS from an interacting Bose gas in $d = 3$ via Klainerman-Machedon type spaces	Abstracts p. 92
16:30-17:00	Christian H Sadel (University of California, Irvine, USA) Absolutely continuous spectrum and ballistic behavior for the Anderson model on the Bethe strip	Abstracts p. 94
17:00-17:30	Milivoje Lukic (Rice University, USA) Jacobi matrices with decaying oscillatory coefficients	Abstracts p. 93
17:30-18:00	Rafael del Rio (IIMAS-UNAM, Mexico) Inverse Problems for Jacobi Operators	Abstracts p. 92
18:00-18:30	Mira Shamis (IAS & Princeton Univ., USA) Anderson localization for non-monotone Schroedinger operators	Abstracts p. 94

Special Session 22	Topological and Variational Methods for Boundary Value Problems Organizer(s): John R. Graef, Lingju Kong, Bo Yang	Location REH-1
16:00-16:30	Feliz Minhos (University of Evora, Portugal) Existence and multiplicity of solutions in fourth order BVPs with unbounded nonlinearities	Abstracts p. 97
16:30-17:00	Wenying Feng (Trent University, Canada) A class of decomposable nonlinear operators and its applications in BVP	Abstracts p. 95
17:00-17:30	Abdulkadir Dogan (Abdullah Gul University, Turkey) Existence of multiple positive solutions for p -Laplacian multipoint boundary value problem on time scales	Abstracts p. 95
17:30-18:00	Joao Fialho (CIMA - UE, Portugal) Generalized upper and lower solutions on fourth order Lidstone problems	Abstracts p. 95
18:00-18:30	Daniel M Maroncelli (North Carolina State University, USA) Two-point boundary value problems with Impulses.	Abstracts p. 97

Special Session 23	Topological and Combinatorial Dynamics Organizer(s): Lluís Alsedà, Francisco Balibrea Gallego, Piotr Oprocha	Location GRC-H
16:00-16:30	Primitivo Acosta-Humanez (Universidad del Norte, Colombia) Simple Permutations with order $4n + 2$	Abstracts p. 100
16:30-17:00	Christopher Bernhardt (Fairfield University, USA) Periods of periodic orbits for vertex maps on graphs	Abstracts p. 101
17:00-17:30	Deborah M King (University of Melbourne, Australia) A Lower Bound for the Maximum Topological Entropy of $4k+2$ -cycles	Abstracts p. 103
17:30-18:00	Lluís Alsedà (Universitat Autònoma de Barcelona, Spain) Topological and algebraic reducibility for patterns on trees	Abstracts p. 100
18:00-18:30	Louis Block (University of Florida, USA) Patterns, Topological Transitivity, and Entropy	Abstracts p. 101

Special Session 24	Geometric Mechanics Organizer(s): Tom Mestdag, Manuel de Leon, Frans Cantrijn, Aziz Hamdouni, Dina Razafindralandy, Jean-Claude Zambrini	Location REH-5
16:00-16:30	François J Gay-Balmaz (Ecole Normale Supérieure de Paris, France) Invariant higher-order variational problems and computational anatomy	Abstracts p. 107
16:30-17:00	Modesto Salgado (Universidad de Santiago de Compostela, Spain) Newtonoids vector fields and conservation laws on the Lagrangian k -symplectic formalism	Abstracts p. 109
17:00-17:30	Joris Vankerschaver (University of California, San Diego, USA) The geometry of multi-Dirac structures	Abstracts p. 110
17:30-18:00	Elisa Lavinia Guzmán Alonso (University of La Laguna, Spain) Lagrangian submanifolds and Classical field theories of first order on Lie algebroids	Abstracts p. 107

Special Session 25	Dynamics in Complex Biological Systems Organizer(s): Bijoy K. Ghosh, Akif Ibragimov, Qishao Lu, Jianzhong Su	Location REH-6
16:00-16:30	Daniel M Abrams (Northwestern University, USA) A mathematical model for the origin of left-handedness	Abstracts p. 111
16:30-17:00	Masatoshi Shiino (Showa Pharmaceutical University, Japan) 1. Control of attractors in nonlinear dynamical systems using external noise/ 2. Effects of noise on synchronization phenomena	Abstracts p. 114
17:00-17:30	Lixia Duan (North China Univ. of Tech., Peoples Rep of China) Bursting Oscillation in the Pre-Bötzinger Complex	Abstracts p. 112
17:30-18:00	Anuraj A Singh (Graphic Era University, Dehradun, India) Complexity in a Leslie-Gower delayed Prey-predator Model	Abstracts p. 114

Special Session 27	Transport Barriers in Dynamical Systems Organizer(s): George Haller, Wenbo Tang	Location REH-8
16:00-16:30	James D Meiss (University of Colorado, USA) Transport in Transitory Dynamical Systems	Abstracts p. 122
16:30-17:00	Themistoklis Sapsis (New York University, USA) Inertial manifold dimensionality and finite-time instabilities in transient turbulent flows	Abstracts p. 123
17:00-17:30	Sherry E Scott (Marquette University, USA) Investigating fluid flows via Individual Trajectory Complexity Methods	Abstracts p. 123
17:30-18:00	A D Kirwan (SMSP, University of Delaware, USA) OUT OF FLATLAND: 3D Aspects of Lagrangian Coherent Structures in Oceanography	Abstracts p. 122

Special Session 30	Recent Developments on Turbulence Organizer(s): Eleftherios Gkioulekas, Michael Jolly	Location POI-C
16:00-16:30	Natalia Vladimirova (University of New Mexico, USA) Phase transitions in optical turbulence	Abstracts p. 135
16:30-17:00	Mohammad Farazmand (McGill University, Canada) Geodesic detection of coherent vortices in two-dimensional turbulence	Abstracts p. 134
17:00-17:30	Evelyn M Lunasin (University of Michigan, USA) Optimal stirring strategies with fixed energy, fixed power or fixed palenstrophy constraint	Abstracts p. 134
17:30-18:00	Adam Larios (Texas A&M University, USA) Recent Numerical Results for the 3D MHD-Voigt Model and Related Models	Abstracts p. 134
18:00-18:30	Michael S Jolly (Indiana University, USA) Bounds on energy, enstrophy for the 2D NSE with single mode forcing	Abstracts p. 134

Special Session 33	Nonlinear Elliptic and Parabolic Problems in Mathematical Sciences Organizer(s): Yoshihisa Morita, Junping Shi	Location REH-9
16:00-16:30	Jann-Long Chern (Central University, Taiwan) Uniqueness of Solutions in a Gravitational Gauge Field Theory with Coexistence of Vortices and Antivortices	Abstracts p. 147
16:30-17:00	Steven D Taliaferro (Texas A&M University, USA) Isolated Singularities of Nonlinear Polyharmonic Inequalities	Abstracts p. 150
17:00-17:30	Yasuhito Miyamoto (Tokyo Institute of Technology, Japan) Stable patterns and Morse index one solutions	Abstracts p. 148
17:30-18:00	Ping Liu (College of William and Mary, USA) Bifurcation from a Degenerate Simple Eigenvalue	Abstracts p. 148
18:00-18:30	Necibe Tuncer (University of Tulsa, USA) Diffusion Driven Instabilities on Evolving Surfaces	Abstracts p. 150

Special Session 34	Multi-phase Flows in Porous Media and Related Systems Organizer(s): David Ambrose, Xiaoming Wang, Steven Wise	Location MAG-A
16:00-16:30	Alain Miranville (Universite de Poitiers, France) A Cahn-Hilliard model with dynamic boundary conditions	Abstracts p. 153
16:30-17:00	Maurizio Grasselli (Politecnico di Milano, Italy) Cahn-Hilliard-Navier-Stokes systems with nonlocal interactions	Abstracts p. 153
17:00-17:30	Franck Boyer (Aix-Marseille Universite, France) Numerical methods for some phase-field models	Abstracts p. 152
17:30-18:00	Shibin Dai (Michigan State University, USA) Functionalized Cahn-Hilliard equation: competitive evolution of bilayers and pores	Abstracts p. 152

Special Session 35	Qualitative Theory of Nonlinear ODEs and Applications Organizer(s): Fabio Zanolin	Location MAG-C
16:00-16:30	Roberto Livrea (University of Reggio Calabria, Italy) Existence and multiplicity results for second order differential problems	Abstracts p. 158
16:30-17:00	Giovanni Molica Bisci (University of Reggio Calabria, Italy) Existence results for parameterized Emden-Fowler equations	Abstracts p. 158
17:00-17:30	Donglun Wu (Sichuan University, Peoples Rep of China) Unbounded Solutions for a Class of Singular Hamiltonian Systems	Abstracts p. 159
17:30-18:00	Fabio Zanolin (University of Udine, Italy) The Poincare'-Birkhoff "twist theorem": some remarks and recent applications to ODEs	Abstracts p. 159

Special Session 37	Mathematical Models and Computations in Cell and Developmental Biology Organizer(s): Anna Cai, Ching-Shan Chou, Qing Nie	Location REH-7
16:00-16:30	Wing Cheong Lo (The Ohio State University, USA) Robust Budding Site Selection and Cell Polarization in Yeast Cells	Abstracts p. 165
16:30-17:00	Richard Schugart (Western Kentucky University, USA) Quantifying Parameters for a Mathematical Model on the Interaction of Matrix Metalloproteinases and Their Inhibitors in a Wound	Abstracts p. 165
17:00-17:30	Muhammad H Zaman (Boston University, USA) Modeling cell-cell and cell-matrix interactions in single and collective motion in 3D	Abstracts p. 165

Special Session 48	Nonlinear Evolution Equations Organizer(s): Alex Himonas, Gerson Petronilho	Location POI-B
16:00-16:30	Gerson Petronilho (University Federal of Sao Carlos, Brazil) Well-posedness and regularity of the periodic gKdV equation	Abstracts p. 205
16:30-17:00	Ryan C Thompson (University of Notre Dame, USA) Nonuniform continuity of the solution map for CH type equations	Abstracts p. 205
17:00-17:30	Melissa Davidson (University of Notre Dame, USA) Continuity Properties of the Solution Map for the Generalized Reduced Ostrovsky Equation	Abstracts p. 203
17:30-18:00	Rafael Barostichi (Universidade Federal de São Carlos, Brazil) Ovsianikov's theorem for autonomous equations and applications	Abstracts p. 202

Special Session 49	Growth Models and Interface Dynamics Organizer(s): Alexander Nepomnyashchy, Tatiana Savin, Amy Novick-Cohen	Location PAL-CC
16:00-16:30	Markus W Abel (University of Nancy - LEMTA, Germany) driven free-standing foam films	Abstracts p. 206
16:30-17:00	Eldad Bettelheim (Hebrew University of Jerusalem, Israel) 1D Integrable systems and 2D hydrodynamics	Abstracts p. 206
17:00-17:30	Avraham Y Klein (Hebrew University in Jerusalem, Israel) Topological transitions in interface dynamics of evaporating thin films	Abstracts p. 207
17:30-18:00	Alexander Nepomnyashchy (Technion - Israel Institute of Technology, Israel) Particle growth in a subdiffusive medium	Abstracts p. 208
18:00-18:30	Tatiana Savin (Ohio University, USA) Interface dynamics and singularities	Abstracts p. 209

Special Session 53	Greedy Algorithms and Tensor Product Representations for High-dimensional Problems Organizer(s): Virginie Ehrlicher, Tony Lelièvre	Location MAG-B
16:00-16:30	Jose Arturo Infante Acevedo (CERMICS - ENPC, France) Applications in Mathematical Finance of a greedy algorithm for solving high-dimensional partial differential equations.	Abstracts p. 221
16:30-17:00	Moulay Abdellah Chkifa (laboratoire Jacques Louis Lions, France) Sparse adaptive Taylor approximation algorithms for parametric and stochastic elliptic PDEs	Abstracts p. 220
17:00-17:30	Virginie Ehrlicher (Ecole des Ponts ParisTech, France) Greedy algorithms for non symmetric linear problems with uncertainty	Abstracts p. 220
17:30-18:00	Christian Rieger (Institute for Numerical Simulation, University of Bonn, Germany) Regularized reconstruction with series kernels	Abstracts p. 221

Special Session 67	Applied Analysis and Dynamics in Engineering and Sciences Organizer(s): Thomas C Hagen, Janos Turi	Location POI-A
16:00-16:30	Shaun Ceci (Le Moyne College, USA) The Navier-Stokes flow of a liquid jet with moving free surface	Abstracts p. 255
16:30-17:00	David Lehotzky (Budapest University of Technology and Economics, Hungary) Stability analysis of the delayed oscillator subjected to digital feedback control	Abstracts p. 256
17:00-17:30	Hongqiu Chen (University of Memphis, USA) Analysis on stability of solitary-wave solutions for a system of nonlinear dispersive equations	Abstracts p. 255
17:30-18:00	Henri Schurz (Southern Illinois University, USA) Stochastic Wave and Heat Equations with Cubic Nonlinearity and Additive Space-time Noise in 2D	Abstracts p. 257

Special Session 70	Modeling and Dynamics of Infectious Diseases Organizer(s): Abba Gumel, Tufail Malik	Location PAL-D
16:00-16:30	Giuseppe G Mulone (University of Catania, Italy) Mathematical models of binge drinking, heroin epidemics, anorexia and bulimia	Abstracts p. 270
16:30-17:00	Adnan Khan (Lahore University of Management Sciences, Pakistan) Modeling Recent Outbreaks of Dengue Fever in Pakistan	Abstracts p. 268
17:00-17:30	Xiaotian Wu (York University, Canada) The Impact of Temperature on the Establishment of Lyme disease Tick Vector Ixodes Scapularis	Abstracts p. 271
17:30-18:00	Ronald E Mickens (Clark Atlanta University, USA) General Comments on the Construction of Mathematical Models for Predator-Prey Interactions	Abstracts p. 269
18:00-18:30	Salisu S Garba (University of Pretoria, So Africa) Mathematical Analysis of Chikungunya Model with Time Delay	Abstracts p. 267

Special Session 75	Heteroclinic Cycles: Theory and Applications Organizer(s): Peter Ashwin, Pascal Chossat, Reiner Lauterbach	Location POI-D
17:00-17:30	Juergen Knobloch (TU Ilmenau, Germany) Dynamics of codimension one homoclinic cycles	Abstracts p. 280
17:30-18:00	Philippe Beltrame (Université d'Avignon, France) Bifurcation of robust heteroclinic cycles in spherically invariant systems with $\ell = 3, 4$ mode interaction	Abstracts p. 279

Special Session 76	On PDEs from Biology Organizer(s): Alexander Lorz	Location PAL-A
16:00-16:30	Kevin J Painter (Heriot-Watt University, Scotland) Spatio-temporal chaos in models for chemotaxis	Abstracts p. 284
16:30-17:00	Nancy Rodriguez (Stanford University, USA) On Global Well-Posedness for Reaction-Advection-Diffusion Systems for Chemotaxis with Growth and Crime Patterns	Abstracts p. 284
17:00-17:30	Jesus Rosado Linares (UCLA, USA) Continuum limits for discrete models of collective behavior	Abstracts p. 284
17:30-18:00	Marie-Therese Wolfram (University of Vienna, Austria) Individual based and mean-field modelling of direct aggregation	Abstracts p. 284
18:00-18:30	Jorge P Zubelli (IMPA, Brazil) On Inverse Problems for some Structured Population PDEs	Abstracts p. 285

Special Session 77	The Navier-Stokes Equations and Related Problems Organizer(s): Sarka Necasova, Reimund Rautmann, Werner Varnhorn	Location REH-3
16:00-16:30	Jan Stebel (Institute of Mathematics of the AS CR, Czech Rep) Compressible Navier-Stokes equations with slip boundary conditions in time dependent domains	Abstracts p. 289
16:30-17:00	Ondrej Kreml (Institute of Mathematics, Academy of Sciences of the Czech Rep., Czech Rep) On the steady equations for compressible radiative gas	Abstracts p. 288
17:00-17:30	Tomasz Piasecki (University of Warsaw, Poland) On a stationary compressible flow with slip - inflow boundary conditions	Abstracts p. 288