

Monday, July 2**13:30PM-15:30PM****Parallel Session 5**

Special Session 1	Qualitative Studies of PDEs: Entire Solutions and Asymptotic Behavior Organizer(s): Peter Polacik, Eiji Yanagida	Location REH-2
13:30-14:00	Kazuhiro Ishige (Tohoku University, Japan) Sharp decay estimates of L^q -norms for nonnegative Schrödinger heat semigroups	Abstracts p. 4
14:00-14:30	Wolfgang Reichel (Karlsruhe Institute of Technology (KIT), Germany) Ground state solutions of the nonlinear Schrödinger equation with interface	Abstracts p. 5
14:30-15:00	Ken-Ichi Nakamura (Kanazawa University, Japan) Existence and asymptotic stability of periodically growing solutions of nonlinear parabolic equations	Abstracts p. 5

Special Session 2	Nonlinear Evolution PDEs and Interfaces in Applied Sciences Organizer(s): Gunduz Caginalp, Maurizio Grasselli, Alain Miranville	Location GRC-A
13:30-14:00	Frederic Abergel (Ecole Centrale Paris, France) Stationary free surface flows in three dimensions	Abstracts p. 7
14:00-14:30	Dalibor Prazak (Charles University, Prague, Czech Rep) Time regularity and uniqueness of non-Newtonian binary fluid mixtures	Abstracts p. 10
14:30-15:00	Ciprian Gal (Florida International University, USA) Global Solutions for the 2D NS-CH model for a two-phase flow of viscous, incompressible fluids with mixed partial viscosity and mobility	Abstracts p. 9
15:00-15:30	Stefano Bosia (Politecnico di Milano, Italy) Diffuse interface Cahn-Hilliard-Ladyzhenskaya models with singular potentials	Abstracts p. 7

Special Session 3	Mathematics of Social Systems Organizer(s): Andrea Bertozzi	Location GRC-B
13:30-14:00	Daniel Balagué (Universitat Autònoma de Barcelona, Spain) Stationary states for the aggregation equation with power law attractive-repulsive potentials	Abstracts p. 12
14:00-14:30	David Uminsky (UCLA, USA) Pattern formation under nonlocal social interaction	Abstracts p. 16
14:30-15:00	Thomas Laurent (UCR, USA) Aggregation via Newtonian Potential and Aggregation Patches	Abstracts p. 13
15:00-15:30	Razvan C Fetecau (Simon Fraser University, Canada) A mathematical model for flight guidance in honeybee swarms	Abstracts p. 12

Special Session 11	Advances in Classical and Geophysical Fluid Dynamics Organizer(s): Madalina Petcu, Roger Temam, Shouhong Wang	Location GRC-I
13:30-14:00	Djoko Wirosoetisno (Durham University, England) Navier-Stokes equations on the beta-plane and the sphere	Abstracts p. 51
14:00-14:30	Aimin Huang (Indiana University Bloomington, USA) The Linearized 2D Inviscid Shallow Water Equations in a Rectangle: Boundary Conditions and Well-Posedness	Abstracts p. 49
14:30-15:00	Antoine Rousseau (Inria, France) Quasi-hydrostatic modelling in geophysical fluid dynamics	Abstracts p. 50
15:00-15:30	Shouhong Wang (Indiana University, USA) Dynamic Transition Theory for Thermohaline Circulation	Abstracts p. 51

Special Session 14	Mathematical Models in Biology and Medicine Organizer(s): Yang Kuang, Bingtuan Li, Jiayu Li, Andrew Nevai	Location GRC-C
13:30-14:00	Yun Kang (Arizona State University, USA) Multiple attractors in intraguild predation models with generalist/specialist predator	Abstracts p. 61
14:00-14:30	Xinyu Song (Xinyang Normal University, Peoples Rep of China) Periodic solutions of a predator-prey system with nonmonotonic response function and impulsive harvesting	Abstracts p. 64
14:30-15:00	Andrew Nevai (University of Central Florida, USA) A PDE model for predator-prey dynamics with a resource subsidy	Abstracts p. 64
15:00-15:30	Jonathan Forde (Hobart and William Smith Colleges, USA) Mathematical Models of the Role of Immune Exhaustion in Hepatitis B and Delta Coinfection	Abstracts p. 60

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
13:30-14:00	Ioan I Vrabie (Al. I. Cuza University, Romania) Nonlinear delay evolution inclusions with nonlocal conditions on the initial history	Abstracts p. 72
14:00-14:30	Popescu Marius (Al. I. Cuza University of Iasi, Romania, Romania) Viability of a time dependent closed set with respect to a semilinear delay evolution inclusion	Abstracts p. 70
14:30-15:00	Arian Novruzzi (University of Ottawa, Canada) Regularity and Singularities of Optimal Convex Shapes in the Plane	Abstracts p. 70
15:00-15:30	Govindan E Trivellore (Instituto Politecnico Nacional, Mexico) Robust feedback stabilization of solutions of stochastic evolution equations with delay	Abstracts p. 71

Special Session 20	Stochastic-Statistical Modeling of Climate Organizer(s): Dimitris Giannakis, John Harlim, Andrew Majda	Location REH-4
13:30-14:00	Stamen Dolaptchiev (Goethe-University Frankfurt, Germany) Stochastic subgrid-scale parameterization designed for a finite-difference model discretization	Abstracts p. 88
14:00-14:30	Themistoklis Sapsis (New York University, USA) Blended reduced subspace algorithms for uncertainty quantification	Abstracts p. 90
14:30-15:00	Michal Branicki (Courant Institute, NYU, USA) Quantifying uncertainty for predictions with model error in non-Gaussian systems with intermittency	Abstracts p. 88
15:00-15:30	Juan M Restrepo (University of Arizona, USA) How do you determine whether the Earth is Warming Up?	Abstracts p. 90

Special Session 22	Topological and Variational Methods for Boundary Value Problems Organizer(s): John R. Graef, Lingju Kong, Bo Yang	Location REH-1
13:30-14:00	Lingju Kong (University of Tennessee at Chattanooga, USA) On a discrete fourth order periodic boundary value problem	Abstracts p. 96
14:00-14:30	Saroj Panigrahi (University of Hyderabad, India) Oscillation results for fourth order nonlinear mixed neutral differential equations	Abstracts p. 98
14:30-15:00	Yu Tian (Beijing University of Posts and Telecommunications, China; Baylor University, USA (visitor scholar), Peoples Rep of China) Applications of variational methods to anti-periodic boundary value problem for second-order differential equations	Abstracts p. 98
15:00-15:30	Min Wang (University of Tennessee at Chattanooga, USA) Fractional boundary value problems with integral boundary conditions	Abstracts p. 99

Special Session 23	Topological and Combinatorial Dynamics Organizer(s): Lluís Alsedà, Francisco Balibrea Gallego, Piotr Oprocha	Location GRC-H
13:30-14:00	William R Ott (University of Houston, USA) Memory loss for time-dependent dynamical systems	Abstracts p. 104
14:00-14:30	Keonhee Lee (Chungnam National University, Korea) Robust Dynamics of C^1 -Generic Diffeomorphisms	Abstracts p. 103
14:30-15:00	Manseob Lee (Mokwon University, Korea) Shadowable chain transitive sets of C^1 -vector fields	Abstracts p. 103

Special Session 24	Geometric Mechanics Organizer(s): Tom Mestdag, Manuel de Leon, Frans Cantrijn, Aziz Hamdouni, Dina Razafindralandy, Jean-Claude Zambrini	Location REH-5
13:30-14:00	Manuel de Leon (Instituto de Ciencias Matematicas, ICMAT, Spain) Hamilton-Jacobi theory for classical field theories	Abstracts p. 107
14:00-14:30	Luca Vitagliano (DipMat, University of Salerno, Italy) A very general Hamilton-Jacobi theorem	Abstracts p. 110
14:30-15:00	Miguel Vaquero (ICMAT, Spain) Hamilton-Jacobi Theory for Singular Lagrangians	Abstracts p. 110
15:00-15:30	Edith Padron (University of La Laguna, Spain) An extension of the Marsden-Weinstein reduction process to the symplectic algebroid setting	Abstracts p. 109

Special Session 25	Dynamics in Complex Biological Systems Organizer(s): Bijoy K. Ghosh, Akif Ibraguimov, Qishao Lu, Jianzhong Su	Location REH-6
13:30-14:00	Lake R Ritter (Southern Polytechnic State University, USA) Foam cell formation in atherogenesis	Abstracts p. 114
14:00-14:30	Richard Schugart (Western Kentucky University, USA) Using a Mathematical Model to Analyze the Treatment of a Wound Infection with Oxygen Therapy	Abstracts p. 114
14:30-15:00	Jianzhong Su (University of Texas at Arlington, USA) A Model for Foreign Body and its Stability Analysis	Abstracts p. 114
15:00-15:30	Indika B Wijayasinghe (Texas Tech University, USA) Eye/Head Movement Dynamics Satisfying the Donders Law	Abstracts p. 115

Special Session 27	Transport Barriers in Dynamical Systems Organizer(s): George Haller, Wenbo Tang	Location REH-8
13:30-14:00	Jean-Luc Thiffeault (University of Wisconsin, Madison, USA) Moving walls accelerate mixing	Abstracts p. 124
14:00-14:30	Michael Allshouse (MIT, USA) Transport Barrier Detection via Braid Theory	Abstracts p. 120
14:30-15:00	Mark A Stremmler (Virginia Tech, USA) Topological chaos in systems 'stirred' by almost-cyclic sets	Abstracts p. 124
15:00-15:30	Sanjeeva Balasuriya (Connecticut College, USA) Explicit stable and unstable manifolds in a class of unsteady 2D and 3D flows	Abstracts p. 120

Special Session 30	Recent Developments on Turbulence Organizer(s): Eleftherios Gkioulekas, Michael Jolly	Location POI-C
13:30-14:00	Marija Vucelja (Courant Institute of Mathematical Sciences, USA) Fractal contours of scalar in smooth flows	Abstracts p. 136
14:00-14:30	Animikh Biswas (University of North Carolina-Charlotte, USA) Maximal spatial analyticity radius for the Navier-Stokes equations	Abstracts p. 133
14:30-15:00	Vincent R Martinez (Indiana University-Bloomington, USA) Dissipative length scales of the Navier-Stokes equations	Abstracts p. 135
15:00-15:30	Alexey Cheskidov (University of Illinois at Chicago, USA) Analytical approach to intermittency in turbulence	Abstracts p. 133

Special Session 33	Nonlinear Elliptic and Parabolic Problems in Mathematical Sciences Organizer(s): Yoshihisa Morita, Junping Shi	Location REH-9
13:30-14:00	Carlos V Rocha (Instituto Superior Tecnico, Portugal) Connection Graphs for Sturm Attractors of S^1 -Equivariant Parabolic Equations	Abstracts p. 149
14:00-14:30	Yihong Du (University of New England, Australia, Australia) Evolution and long-time behavior of the free boundary in nonlinear Stefan problems	Abstracts p. 147
14:30-15:00	Hayato Chiba (Kyushu university, Japan) Reduction of parabolic PDEs	Abstracts p. 147
15:00-15:30	Shinya Okabe (Mathematical Institute, Tohoku University, Japan) Long time existence of shortening-straightening flow for non-closed planar curves with infinite length	Abstracts p. 149

Special Session 34	Multi-phase Flows in Porous Media and Related Systems Organizer(s): David Ambrose, Xiaoming Wang, Steven Wise	Location MAG-A
13:30-14:00	Ying Sun (Drexel University, USA) 3-D pore-scale resolved model for coupled species/charge/fluid transport in a vanadium redox flow battery	Abstracts p. 154
14:00-14:30	Milton C Lopes Filho (IMECC-UNICAMP, Brazil) Stability of 2D incompressible flows under 3D perturbations	Abstracts p. 153
14:30-15:00	Antoine Mellet (University of Maryland, USA) Liquid Drops sliding down an inclined plane	Abstracts p. 153

Special Session 35	Qualitative Theory of Nonlinear ODEs and Applications Organizer(s): Fabio Zanolin	Location MAG-C
13:30-14:00	Gabriele Bonanno (University of Messina, Italy) A local minimum theorem and applications to nonlinear ordinary differential problems	Abstracts p. 156
14:00-14:30	Pasquale Candito (University of Reggio Calabria, Italy) Existence and multiplicity of solutions for a Dirichlet boundary value problem	Abstracts p. 156
14:30-15:00	Antonia Chinnì (University of Messina, Italy) Existence results of solutions for $p(x)$ -Laplacian elliptic Dirichlet problems	Abstracts p. 157
15:00-15:30	Giuseppina D'Agui (DiSIA, University of Messina, Italy) Mixed boundary value problems with Sturm-Liouville equations	Abstracts p. 157

Special Session 37	Mathematical Models and Computations in Cell and Developmental Biology Organizer(s): Anna Cai, Ching-Shan Chou, Qing Nie	Location REH-7
13:30-14:00	Alexandra Jilkine (University of Arizona, USA) A Stochastic Density-Dependent Switch Drives Spontaneous Cell Polarization	Abstracts p. 164
14:00-14:30	Jinzhi Lei (Tsinghua University, Peoples Rep of China) PDCD5-regulated cell fate decision after UV-irradiation induced DNA damage	Abstracts p. 164
14:30-15:00	Doron Levy (University of Maryland, USA) Mathematical Models for Phototaxis	Abstracts p. 164
15:00-15:30	Xinfeng Liu (University of South Carolina, USA) Mathematical modeling and computational studies for cell signaling with scaffolds	Abstracts p. 164

Special Session 48	Nonlinear Evolution Equations Organizer(s): Alex Himonas, Gerson Petronilho	Location POI-B
13:30-14:00	Peter Topalov (Northeastern University, USA) Generic non self-adjoint Zakharov-Shabat operators	Abstracts p. 205
14:00-14:30	Katelyn J Grayshan (University of Notre Dame, USA) Analysis of the b-family equation	Abstracts p. 203
14:30-15:00	Seungly Oh (University of Kansas, USA) Smoothing results for Korteweg de-Vries equations on \mathbf{R} and \mathbf{T}	Abstracts p. 204
15:00-15:30	Ming Chen (University of Pittsburgh, USA) Illposedness of a weakly dispersive Boussinesq system	Abstracts p. 202

Special Session 53	Greedy Algorithms and Tensor Product Representations for High-dimensional Problems Organizer(s): Virginie Ehrlacher, Tony Lelièvre	Location MAG-B
13:30-14:00	Reinhold Schneider (TU Berlin, Germany) Optimization in hierarchical tensor formats	Abstracts p. 221
14:30-15:00	Antonio Falco (Universidad de Alicante, Spain) Geometric Structures in Tensor Representations	Abstracts p. 220
15:00-15:30	Bernard G Haasdonk (University of Stuttgart, Germany) The POD-Greedy Method: Convergence Rates and Applications	Abstracts p. 220

Special Session 67	Applied Analysis and Dynamics in Engineering and Sciences Organizer(s): Thomas C Hagen, Janos Turi	Location POI-A
13:30-14:00	Qingwen Hu (The University of Texas at Dallas, USA) Global stability lobes of turning processes with state-dependent delay	Abstracts p. 256
14:00-14:30	Lorena Bociu (NC State University, USA) Linear models for fluid-elasticity interactions	Abstracts p. 254
14:30-15:00	Saroj P Pradhan (University Of Central Oklahoma, USA) Stability Analysis of Human Respiratory System with both Central and Peripheral control	Abstracts p. 257
15:00-15:30	Florian Rupp (TU Munich, Germany) On the Jellyfish Joyride: Mathematical Analysis of Catastrophes in Maritime Ecosystems	Abstracts p. 257

Special Session 70	Modeling and Dynamics of Infectious Diseases Organizer(s): Abba Gumel, Tufail Malik	Location PAL-D
13:30-14:00	Olivia F Prosper (University of Florida, USA) Impact of Enhanced Malaria Control on the Competition Between Plasmodium falciparum and Plasmodium vivax	Abstracts p. 270
14:00-14:30	Abdessamad Tridane (ASU, USA) Mathematical analysis of a virus dynamics model with general incidence rate and cure rate	Abstracts p. 271
14:30-15:00	Paul L Salceanu (University of Louisiana, Lafayette, USA) Robust uniform persistence and competitive exclusion in a nonautonomous multistrain SIR epidemic model with disease-induced mortality	Abstracts p. 270
15:00-15:30	Abba Gumel (University of Manitoba, Canada) Backward Bifurcations in Disease Transmission Models	Abstracts p. 267

Special Session 75	Heteroclinic Cycles: Theory and Applications Organizer(s): Peter Ashwin, Pascal Chossat, Reiner Lauterbach	Location POI-D
13:30-14:00	Claire M Postlethwaite (University of Auckland, New Zealand) Resonance of robust heteroclinic networks	Abstracts p. 281
14:00-14:30	Michael Field (Houston, USA) Heteroclinic cycles in complex systems	Abstracts p. 280
14:30-15:00	Maciej Krupa (Université Le Havre/INRIA, France) Asymptotic stability of robust heteroclinic cycles	Abstracts p. 280
15:00-15:30	Sofia Castro (University of Porto, Portugal) Stability and dynamics along a heteroclinic network	Abstracts p. 279

Special Session 76	On PDEs from Biology Organizer(s): Alexander Lorz	Location PAL-A
13:30-14:00	Pierre-Emmanuel Jabin (University of Maryland, USA) Selection-Mutation dynamics	Abstracts p. 283
14:00-14:30	Tommaso Lorenzi (Politecnico di Torino, Italy) Asymptotic dynamics in structured populations endangered by global warming and habitat shrinking	Abstracts p. 283
14:30-15:00	Marco Morandotti (Carnegie Mellon University, USA) Self-propulsion in viscous fluids through shape deformation	Abstracts p. 283
15:00-15:30	Sebastien Motsch (CSCAMM, University of Maryland, USA) Hydrodynamic models of self-organized dynamics	Abstracts p. 283

Special Session 77	The Navier-Stokes Equations and Related Problems Organizer(s): Sarka Necasova, Reimund Rautmann, Werner Varnhorn	Location REH-3
13:30-14:00	Tomas Schonbek (Florida Atlantic University, USA) The Fractional Laplacian in an Exterior Domain	Abstracts p. 289
14:00-14:30	Juergen Saal (Center of Smart Interfaces, TU Darmstadt, Germany) Maximal regularity on cross-sections implies maximal regularity on a cylinder	Abstracts p. 288
14:30-15:00	Hi Jun Choe (Yonsei University, Korea) Maximum Modulus Estimate in Nonstationary Stokes System	Abstracts p. 287
15:00-15:30	Ken Abe (University of Tokyo, Japan) The L^∞ -Stokes semigroup in exterior domains	Abstracts p. 286