Tuesday, July 3   **13:30PM-15:30PM**   **Parallel Session 8**

Special Session **3**	**Mathematics of Social Systems** Organizer(s): Andrea Bertozzi	Location **GRC-B**
13:30-14:00	Maria D'orsogna (California State University at Northridge, USA) An adversarial evolutionary game for criminal behavior	Abstracts p. 12
14:00-14:30	Nancy Rodriguez (Stanford University, USA) Hotspot Invasion: Traveling Wave Solutions to a Reaction-Diffusion Model for Criminal Behavior	Abstracts p. 15
14:30-15:00	George Mohler (Santa Clara University, USA) Filtering and estimation of self-exciting Cox processes with applications to social systems	Abstracts p. 14
15:00-15:30	Alethea Barbaro (UCLA Mathematics, USA) Modeling Social Dynamics	Abstracts p. 12

Special Session **6**	**Dispersal in Heterogeneous Landscape** Organizer(s): Robert Stephen Cantrell, Chris Cosner, Yuan Lou, Juan Diego Davila, Alexander Quaas	Location **MAG-B**
13:30-14:00	Donald L DeAngelis (University of Miami, USA) Fish Biomass Production and Dispersal across a Seasonally Flooded Marsh	Abstracts p. 29
14:00-14:30	William F Fagan (University of Maryland, USA) Linking Individual Movements and Population Patterns in Dynamic Landscapes	Abstracts p. 29
14:30-15:00	Samuel M Flaxman (University of Colorado Boulder, USA) Evolutionary Ecology of Habitat Selection by Predators and Prey	Abstracts p. 29
15:00-15:30	Salome Martinez (Universidad de Chile, Chile) Asymptotic behavior of a nonlocal inhomogeneous equation	Abstracts p. 31

Special Session **9**	**Mathematics for Information Processing and Management** Organizer(s): Jianhong Wu, Zongben Xu	Location **REH-5**
13:30-14:00	Ai Ling Amy Poh (Meiji University, Malaysia) ELECTRE ranking approach for benchmarking analysis in marketing sector	Abstracts p. 39
14:00-14:30	Aijun An (York University, Canada) Discovering Most collaborative Teams of Experts in Social Networks	Abstracts p. 39
14:30-15:00	Zhiping Chen (Xi'an Jiaotong University, Peoples Rep of China) Time consistent multiperiod risk measure under generalized convex framework	Abstracts p. 39
15:00-15:30	Dazhi Chong (Old Dominion University, USA) Firm Clustering using Standard-Based Financial Statements	Abstracts p. 39

Special Session **10**	**Computational and Nonautonomous Dynamics** Organizer(s): Michael Dellnitz, Oliver Junge, Stefan Siegmund	Location **GRC-A**
13:30-14:00	Matthew West (University of Illinois at Urbana-Champaign, USA) Multiscale time evolution for Markov jump particle systems	Abstracts p. 47
14:00-14:30	Lee DeVille (University of Illinois, USA) Multiscaling and Coarse-graining for Coagulation Processes in High Dimension	Abstracts p. 43
14:30-15:00	Eric Darve (Stanford, USA) Macro-state models for protein modeling	Abstracts p. 43
15:00-15:30	Sina Ober-Blobaum (University of Paderborn, Germany) On the development and analysis of variational integrators for multirate dynamical systems	Abstracts p. 45

Special Session **12**	**Singular Perturbations and Boundary Layer Theory** Organizer(s): Makram Hamouda, Chang-Yeol Jung, Roger Temam	Location **REH-6**
13:30-14:00	Roger Temam (Indiana University, USA) Convection-diffusion equation with small viscosity in a circle	Abstracts p. 54
14:00-14:30	Chang-Yeol Jung (UNIST, Korea) Singularly perturbed convection-diffusion equations on a circle domain	Abstracts p. 53
14:30-15:00	Fernanda F Cipriano (GFM-UL and FCT New University of Lisbon, Portugal) Boundary layer problem: Navier-Stokes equations and Euler equations	Abstracts p. 52
15:00-15:30	Tuoc V Phan (University of Tennessee, USA) Navier-Stokes Equations in Critical Spaces: Existence and Stability of Steady State Solutions	Abstracts p. 53

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	Michinori Ishiwata (Fukushima University, Japan) Variational problems associated with Trudinger-Moser inequalities in unbounded domains	Abstracts p. 68
14:00-14:30	Yusuke Yamauchi (Waseda University, Japan) Life span of positive solutions for a semilinear heat equation with non-decaying initial data	Abstracts p. 72
14:30-15:00	Junichi Harada (Waseda University, Japan) Asymptotic behavior of blow-up solutions for the heat equations with nonlinear boundary conditions	Abstracts p. 67
15:00-15:30	Joep Evers (Eindhoven University of Technology, Netherlands) Leadership in crowd dynamics: modelling via two-scale interactions	Abstracts p. 67

Special Session **17**	**Singular Perturbations** Organizer(s): Freddy Dumortier, Peter De Maesschalck, Martin Wechselberger	Location **GRC-I**
13:30-14:00	Anna R Ghazaryan (Miami University, USA) Gasless combustion fronts with heat loss	Abstracts p. 79
14:00-14:30	Emily P Harvey (Montana State University, USA) Using geometric singular perturbation techniques to analyse models of intracellular calcium dynamics	Abstracts p. 79
14:30-15:00	Alexandre Vidal (University of Evry, France) Mixed-Mode Oscillations in a multiple time scale phantom bursting system	Abstracts p. 80
15:00-15:30	Andrey Shilnikov (GSU, USA) Interval mappings for slow-fast models of neurons	Abstracts p. 80

Special Session **18**	**Qualitative Theory of Evolutionary Equation and its Application** Organizer(s): Xiaojie Hou , Yi Li, Wei-Ming Ni, YuanWei Qi, Yaping Wu	Location **PAL-D**
13:30-14:00	Yuanwei Qi (UCF, USA) Traveling Waves of Thermal Diffusivity System-Existence and Stability	Abstracts p. 82
14:00-14:30	Zhisheng Shuai (University of Victoria, Canada) A Graph-Theoretic Approach to Global Stability Problems in Some Discrete Diffusion Models	Abstracts p. 83
14:30-15:00	Joaquin Rivera (Colgate University, USA) Spreading Speed, Traveling Waves and Linear Determinacy for STDs Models	Abstracts p. 82
15:00-15:30	Yi Li (Wright State University and Xi'an Jiaotong University, USA) Multiple Solutions to an Elliptic Problem Related to Vortex Pairs	Abstracts p. 82

Special Session **21**	**Dynamical Systems and Spectral Theory** Organizer(s): David Damanik	Location **REH-2**
13:30-14:00	Anton Gorodetski (UC Irvine, USA) Properties of the IDS of the Fibonacci Hamiltonian	Abstracts p. 92
14:00-14:30	William Yessen (UC Irvine, USA) Spectral analysis of tridiagonal Fibonacci Hamiltonians	Abstracts p. 94
14:30-15:00	Roberta Fabbri (Universita' di Firenze, Italy) Spectral properties for the quasi-periodic Schroedinger equation	Abstracts p. 92
15:00-15:30	Helge Krueger (Caltech, USA) Recent developments for skew-shiftSchroedinger operators	Abstracts p. 93

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	Jesus Rodriguez (North Carolina State Univerity, USA) Existence Analysis for Nonlocal Sturm-Liouville Boundary Value Problems	Abstracts p. 98
14:00-14:30	Joseph Paullet (Penn State Erie, USA) Boundary value problems governing fluid flow and heat transfer over an unsteady stretching sheet	Abstracts p. 98
14:30-15:00	Jeffrey W Lyons (Texas A&M University - Corpus Christi, USA) Boundary Data Smoothness for Solutions of nth Order Nonlocal Boundary Value Problems	Abstracts p. 97
15:00-15:30	Pengfei Yuan (Sichuan University, Peoples Rep of China) New periodic solutions for N-body-type problems with prescribed energies	Abstracts p. 99

Special Session **26**	**Qualitative Aspects of Nonlinear Boundary Value Problems** Organizer(s): Marta Garcia-Huidobro, Raul Manasevich, James Ward	Location **REH-7**
13:30-14:00	Alberto Montero (P. Universidad Católica de Chile, Chile) On the energy of the current vector of a complex valued function in $\mathbb{R}^3$	Abstracts p. 118
14:00-14:30	Ricardo Enguiça (Centro de Matematica e Aplicacoes Fundamentais, Portugal) Nonlocal maximum principles and applications	Abstracts p. 117
14:30-15:00	Ignacio Guerra (Universidad de Santiago de Chile, Chile) Solutions for a semilinear elliptic equation in dimension two with supercritical growth.	Abstracts p. 118
15:00-15:30	Mariel Saez (Pontificia Universidad Catolica, Chile) Hyperbolic fractional Laplacian	Abstracts p. 119

Special Session **27**	**Transport Barriers in Dynamical Systems** Organizer(s): George Haller, Wenbo Tang	Location **REH-8**
13:30-14:00	Shawn Shadden (IIT, USA) Maximal stretching surfaces as potential platelet activation pathways	Abstracts p. 123
14:00-14:30	Melissa A Green (Syracuse University, USA) Using LCS to study the transition vortex shedding on a cylinder in cross-flow	Abstracts p. 121
14:30-15:00	Amir BozorgMagham (Virginia Tech University, USA) Lagrangian coherent structures, biological invasions, and limits of forecasting	Abstracts p. 120
15:00-15:30	Emily Shuckburgh (British Antarctic Survey, England) Mapping unstable manifolds using floats in a Southern Ocean field campaign	Abstracts p. 123

Special Session **29**	**Self-organized Behavior of Nonlinear Elliptic Equations and Pattern Formation of Strongly Interacting Systems** Organizer(s): Susanna Terracini, Jun-cheng Wei	Location **GRC-H**
13:30-14:00	Nicholas D Brubaker (University of Delaware, USA) On a prescribed mean curvature equation in modeling MEMS	Abstracts p. 129
14:00-14:30	Juan Davila (Universidad de Chile, Chile) Solutions with point singularities for a MEMS equation with fringing field	Abstracts p. 129
14:30-15:00	Veronica Felli (University of Milano-Bicocca, Italy) Singularity of eigenfunctions at the junction of shrinking tubes	Abstracts p. 129
15:00-15:30	Ignacio Guerra (Universidad de Santiago de Chile, Chile) Solutions for a semilinear elliptic equations involving critical exponents.	Abstracts p. 130

Special Session **33**	**Nonlinear Elliptic and Parabolic Problems in Mathematical Sciences** Organizer(s): Yoshihisa Morita, Junping Shi	Location **REH-9**
13:30-14:00	Arnd Scheel (University of Minnesota, USA) Wavenumber selection in closed reaction-diffusion systems	Abstracts p. 149
14:00-14:30	Yoshihisa Morita (Ryukoku University, Japan) Gradient-like property of a reaction-diffusion system with mass conservation	Abstracts p. 148
14:30-15:00	Hirokazu Ninomiya (Meiji University, Japan) Diffusion-induced blowup and bifurcation from infinity of reaction-diffusion systems	Abstracts p. 148
15:00-15:30	Yoshihito Oshita (Okayama University, Japan) Dynamics for an evolution equation describing micro phase separation	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	Shuwang Li (Illinois Instaitute of Technology, USA) A rescaling scheme and its applications to free boundary problems	Abstracts p. 153
14:00-14:30	Mark Sussman (Florida State University, USA) A Coupled Level Set-Moment of Fluid Method for Incompressible Two-Phase Flows	Abstracts p. 154
14:30-15:00	David M Ambrose (Drexel University, USA) Removing the stiffness from 3D interfacial flow with surface tension	Abstracts p. 152
15:00-15:30	Michael Siegel (NJIT, USA) A nonstiff boundary integral method for 3D interfacial flow with surface tension	Abstracts p. 154

Special Session **38**	**Bifurcations and Asymptotic Analysis of Solutions of Nonlinear Models** Organizer(s): Jann-Long Chern, Yoshio Yamada, Shoji Yotsutani	Location **PAL-A**
13:30-14:00	Minoru Murai (Ryukoku University, Japan) Structure and blow up phenomena for plane closed elastic curves	Abstracts p. 167
14:00-14:30	Yoshitsugu Kabeya (Osaka Prefecture University, Japan) Structures of positive solutions to nonlinear elliptic equations on the hyperbolic space	Abstracts p. 167
14:30-15:00	Soohyun Bae (Hanbat National University, Korea) On positive solutions of semilinear elliptic equations with supercritical exponent	Abstracts p. 166
15:00-15:30	Yong-Li Tang (National Center for Theoretical Sciences, Taiwan) Structural analysis of solutions to nonlinear systems of elliptic partial differential equations	Abstracts p. 168

Special Session **41**	**New Developments in Qualitative Behavior of Evolutionary PDEs** Organizer(s): Ryo Ikehata, Grozdena Todorova	Location **PAL-CC**
13:30-14:00	Hiroyuki Takamura (Future University Hakodate, Japan) The final problem on the optimality of the general theory for nonlinear wave equations and related topics.	Abstracts p. 175
14:00-14:30	Petronela Radu (University of Nebraska-Lincoln, USA) Existence and blow-up of solutions for nonlinear wave equations	Abstracts p. 175
14:30-15:00	Hideo Kubo (Tohoku University, Japan) Global existence for critical nonlinear massless Dirac equations with null structure in 3D	Abstracts p. 174
15:00-15:30	Hideo Nakazawa (Chiba Institute of Technology, Japan) Uniform resolvent estimates for Helmholtz equation in an exterior domain and their application to scattering problems	Abstracts p. 175

Special Session **42**	**Global or/and Blowup Solutions for Nonlinear Evolution Equations and Their Applications** Organizer(s): George Chen, Ming Mei	Location **REH-4**
13:30-14:00	Priyanjana Dharmawardane (Kyushu University, Japan) Decay property of regualrity-loss type for quasi-linear hyperbolic systems of viscoelasticity	Abstracts p. 177
14:00-14:30	Seiro Omata (Kanazawa University, Japan) Mathematical and computational aspects of problems involving adhesion, detachment, and collision	Abstracts p. 180
14:30-15:00	Zhixian Yu (University of Shanghai for Technology and Science, Peoples Rep of China) Existence of monotone traveling waves for a delayed non-monotone population model on 1-D lattice	Abstracts p. 182
15:00-15:30	Fengxin Chen (University of Texas at San Antonio, USA) Structure of Principal Eigenvectors and Genetic Diversity	Abstracts p. 177

Special Session **48**	**Nonlinear Evolution Equations** Organizer(s): Alex Himonas, Gerson Petronilho	Location **POI-B**
13:30-14:00	Jaime Angulo Pava (University of Sao Paulo, Brazil) Linear instability of Periodic Traveling Waves for Nonlinear Dispersive Models	Abstracts p. 202
14:00-14:30	Martha Patricia Dussan Angulo (University of Sao Paulo, Brazil) Solutions of Björling problem for timelike surface and the homogeneous wave equation	Abstracts p. 203
14:30-15:00	Daniel da Silva (University of Rochester, USA) Generalized Wave Maps on the Sphere	Abstracts p. 203
15:00-15:30	Anahit Galstyan (University of Texas-Pan American, USA) Cauchy Problem for some hyperbolic equations of mathematical cosmology	Abstracts p. 203

Special Session **52**	**Fractional Differential and Integral Equations, Theory and Applications** Organizer(s): Eduardo Cuesta, Mokhtar Kirane, Onur Alp Ilhan	Location **MAG-C**
13:30-14:00	Aissa Guesmia (Lorraine University, France) Asymptotic stability of abstract dissipative systems with infinite memory	Abstracts p. 217
14:00-14:30	Hossein H Jafari (University of Mazandaran, So Africa) Solving Fractional Riccati differential equations using modified variational iteration method	Abstracts p. 217
14:30-15:00	Angela Jimenez-Casas (Universidad Pontifica Comillas de Madrid, Spain) Finite-dimensional behavior in a thermosyphon with a viscoelastic fluid	Abstracts p. 218
15:00-15:30	Muhammad Mustafa (King Fahd University of Petroleum and Minerals, Saudi Arabia) Exponential decay in thermoelastic systems with boundary delay	Abstracts p. 219

Special Session **58**	**Variational Analysis and Equilibrium Problems** Organizer(s): Patrizia Daniele	Location **POI-C**
13:30-14:00	Annamaria Barbagallo (University of Naples "Fedirico II", Italy) A variational formulation for dynamic market equilibrium problems with excesses	Abstracts p. 235
14:00-14:30	Sofia Giuffre (Mediterranea University of Reggio Calabria, Italy) A survey on duality theory in elastic-plastic torsion problem	Abstracts p. 236
14:30-15:00	Tina Wakolbinger (WU (Vienna University of Economics and Business), Austria) The influence of technical, market and legislative factors on e-waste flows	Abstracts p. 237
15:00-15:30	Fuminori Toyasaki (York University, Canada) A Variational Inequality Formulation of Economic Network Equilibrium Models with Nonlinear Constraints	Abstracts p. 237

Special Session **75**	**Heteroclinic Cycles: Theory and Applications** Organizer(s): Peter Ashwin, Pascal Chossat, Reiner Lauterbach	Location **POI-D**
13:30-14:00	Alexandre A Rodrigues (Sciences Faculty Oporto University, Portugal) Heteroclinic Phenomena	Abstracts p. 282
14:00-14:30	Irma Tristan (University of California San Diego, Mexico) Timing Control of Networks with Switching Dynamics	Abstracts p. 282
14:30-15:00	Thorsten Riess (University of Konstanz, Germany) Heteroclinic bifurcations near non-reversible homoclinic snaking	Abstracts p. 282
15:00-15:30	Alexander Lohse (University of Hamburg, Germany) On relations between the stability index and attraction properties of heteroclinic cycles	Abstracts p. 281

Special Session **81**	**Analysis and Simulation of Multi-scale Problems** Organizer(s): Xiao-Ping Wang, Yang Xiang	Location **REH-3**
13:30-14:00	Pingbing Ming (AMSS, Peoples Rep of China) Well-posedness of A Generalized Peierls-Naborro Model	Abstracts p. 302
14:00-14:30	Weiqing Ren (New York University, Singapore) A seamless multiscale method and its application to complex fluids	Abstracts p. 303
14:30-15:00	Phanish Suryanarayana (Georgia Institute of Technology, USA) Coarse-graining Kohn-Sham Density Functional Theory	Abstracts p. 303
15:00-15:30	Xiaoping Wang (Hong Kong University of Science and Technology, Hong Kong) Efficent numerical methods for the phase field simulation of moving contact line problem	Abstracts p. 303

Special Session **82**	**Multi-component Integrable Systems, Solitons, and Nonlinear Waves** Organizer(s): Stephen Anco, Yue Liu, Changzheng Qu	Location **POI-A**
13:30-14:00	Stephen Anco (Brock University, Canada) Multi-component soliton equations from geometric curve flows	Abstracts p. 305
14:00-14:30	Ming Chen (University of Pittsburgh, USA) C^3 ill-posedness of the gravity-capillary problem	Abstracts p. 305
14:30-15:00	Byungsoo Moon (University of Texas at arlington, USA) Wave breaking and global existence for the generalized periodic two-component Hunter-Saxton system	Abstracts p. 306
15:00-15:30	Xu Junxiang (Southeast University, Peoples Rep of China) On small quasi-periodic perturbation of two-dimensional hyperbolic-type degenerate nonlinear systems	Abstracts p. 306

Contributed Session **07**	**Scientific Computation and Numerical Algorithms** Chair(s): Paula Kemp	Location **GRC-C**
13:30-13:50	Dominic Kohler (Technical University Munich, Germany) Uncertainty Quantification with Probabilistic Cellular Automata	Abstracts p. 324
13:50-14:10	Eucharia C Nwachukwu (University of Port Harcourt, Nigeria) Determining important parameters in the dynamics of a three-compartment model of abiotic nutrient pool, autotroph and detritus.	Abstracts p. 324
14:10-14:30	Eucharia C Nwachukwu (University of Port Harcourt, Nigeria) Sensitivity analysis of a mathematical ecology model.	Abstracts p. 324
14:30-14:50	Andrei Bourchtein (Pelotas State University, Brazil) Time-splitting scale-selective numerical scheme for atmospheric modeling	Abstracts p. 323
14:50-15:10	Stefanie Thiem (Chemnitz University of Technology, Germany) Modeling the Thermal Conductance of Phononic Crystal Plates	Abstracts p. 325