

**Monday, July 2****08:00AM-10:00AM****Parallel Session 4**

Special Session <b>1</b>	<b>Qualitative Studies of PDEs: Entire Solutions and Asymptotic Behavior</b> Organizer(s): Peter Polacik, Eiji Yanagida	Location <b>REH-2</b>
8:00-8:30	Peter Polacik (University of Minnesota, USA) Convergence for asymptotically autonomous parabolic equations on $R^N$	Abstracts p. 5
8:30-9:00	Futoshi Takahashi (Osaka City University, Japan) On the number of maximum points of least energy solutions to a two-dimensional Hénon equation with large exponent	Abstracts p. 5
9:00-9:30	Juncheng Wei (Chinese University of Hong Kong, Hong Kong) On Toda System: Classification and Applications	Abstracts p. 5
9:30-10:00	Goro Akagi (Kobe University, Japan) Stability analysis of asymptotic profiles for fast diffusion equations	Abstracts p. 4

Special Session <b>2</b>	<b>Nonlinear Evolution PDEs and Interfaces in Applied Sciences</b> Organizer(s): Gunduz Caginalp, Maurizio Grasselli, Alain Miranville	Location <b>GRC-A</b>
8:00-8:30	Paolo Podio-Guidugli (University of Rome TorVergata, Italy) A Thermodynamic Format for Phase-Field Modeling	Abstracts p. 10
8:30-9:00	Julien Dambrine (Universite de Poitiers, France) Congestion in cell migration models	Abstracts p. 8
9:00-9:30	Emre Esenturk (Pohang Mathematics Institute, Korea) Vlasov-Poisson System with Diffuse Boundary Conditions	Abstracts p. 8
9:30-10:00	Amy Novick-Cohen (Technion, Israel) The thin film equation with backwards second order diffusion	Abstracts p. 10

Special Session <b>3</b>	<b>Mathematics of Social Systems</b> Organizer(s): Andrea Bertozzi	Location <b>GRC-B</b>
8:30-9:00	Jean-Pierre Nadal (CNRS, France) Urban social dynamics: “Don’t buy the house, buy the neighborhood”	Abstracts p. 14
9:00-9:30	Mason A Porter (University of Oxford, England) Multi-Stage Complex Contagions	Abstracts p. 15
9:30-10:00	Theodore Kolokolnikov (Dalhousie, Canada) Swarming on random graphs	Abstracts p. 13

Special Session <b>11</b>	<b>Advances in Classical and Geophysical Fluid Dynamics</b> Organizer(s): Madalina Petcu, Roger Temam, Shouhong Wang	Location <b>GRC-I</b>
8:00-8:30	Xiaoming Wang (Florida State University, USA) Fluctuation-dissipation theory with time periodic forcing	Abstracts p. 51
8:30-9:00	Eric R Simonnet (CNRS, France) Near-equilibrium behavior of 2-D stochastic Navier-Stokes equations	Abstracts p. 50
9:00-9:30	Roger Temam (Indiana University, USA) The Zakharov-Kuznetsov equation of plasma physics: The case of a bounded domain	Abstracts p. 51
9:30-10:00	Theodore Tachim Medjo (Florida International University, USA) Pullback attractors for the 2D Primitive equations of the ocean.	Abstracts p. 50

Special Session <b>13</b>	<b>Global Dynamics in Hamiltonian Systems</b> Organizer(s): Rafael de la Llave, Tere.M-Seara	Location <b>MAG-A</b>
8:00-8:30	Laurent Niederman (Université Paris Sud & Observatoire de Paris, France) Generic super-exponential stability of invariant tori in Hamiltonian systems	Abstracts p. 57
8:30-9:00	Alex Haro (Universitat de Barcelona, Spain) Singularity theory for non-twist KAM tori: A methodology	Abstracts p. 56
9:00-9:30	Jean Pierre J Marco (Université Paris 6, France) Hyperbolic cylinders and KAM tori in nearly integrable systems on $A^3$	Abstracts p. 57
9:30-10:00	Florentino Borondo (Universidad Autonoma de Madrid, Spain) Poincare-Birkhoff theorem in quantum mechanics	Abstracts p. 55

Special Session <b>14</b>	<b>Mathematical Models in Biology and Medicine</b> Organizer(s): Yang Kuang, Bingtuan Li, Jiaxu Li, Andrew Nevai	Location <b>GRC-C</b>
8:00-8:30	Wan-Tong Li (Lanzhou University, Peoples Rep of China) Global Bifurcation Branch of a Spatially Heterogeneous Cooperative System with Cross-Diffusion	Abstracts p. 62
8:30-9:00	Zhaosheng Feng (University of Texas-Pan American, USA) A Degenerate Parabolic System	Abstracts p. 60
9:00-9:30	Nemanja Kosovalic (York University, Canada) Age Structured Population Model with State Dependent Time Delay	Abstracts p. 62
9:30-10:00	Wanbiao Ma (University of Science and Technology Beijing, Peoples Rep of China) Theoretical and Numerical Analysis of a Class of Dynamics Models Describing Eutrophication of Lake Guishui	Abstracts p. 63

Special Session <b>15</b>	<b>Nonlinear Evolution Equations, Inclusions and Related Topics</b> Organizer(s): Mitsuharu Otani, Tohru Ozawa, N. U. Ahmed, S. Migorski, I. I. Vrabie	Location <b>GRC-G</b>
8:00-8:30	Vasile Staicu (University of Aveiro, Portugal, Portugal) Multiple positive solutions for periodic problems with concave terms	Abstracts p. 71
8:30-9:00	Jerzy J Motyl (University of Zielona Gora, Poland) Stochastic delay inclusions with noncontinuous multifunctions	Abstracts p. 70
9:00-9:30	Mariusz Michta (University of Zielona Gora and Opole University, Poland, Poland) Fuzzy stochastic differential equations-different approaches and recent results.	Abstracts p. 69
9:30-10:00	Lourdes Tello (Universidad Politecnica de Madrid, Spain) On a nonstandard nonlinear parabolic problem for the coupling surface – deep ocean temperatures with latent heat and coalbedo terms.	Abstracts p. 71

Special Session <b>19</b>	<b>Waves and Convection</b> Organizer(s): Sam Stechmann, Leslie Smith	Location <b>REH-8</b>
8:00-8:30	Paul Milewski (University of Bath, England) Internal solitary waves in two-layer flows with shear.	Abstracts p. 86
8:30-9:00	Esteban G Tabak (New York University, Courant Institute, USA) The diurnal cycle and the meridional extent of the tropics	Abstracts p. 87
9:00-9:30	Roberto Camassa (UNC, USA) Multi-modal dynamics in parallel and wave-induced stratified shear layers	Abstracts p. 84

Special Session <b>20</b>	<b>Stochastic-Statistical Modeling of Climate</b> Organizer(s): Dimitris Giannakis, John Harlim, Andrew Majda	Location <b>REH-4</b>
8:30-9:00	Shane Keating (Courant Institute of Mathematical Science, USA) Stochastic data assimilation methods for estimating ocean eddy heat transport	Abstracts p. 89
9:00-9:30	Georg Gottwald (University of Sydney, Australia) Stochastic homogenization for an energy conserving multi-scale toy model of the atmosphere	Abstracts p. 89
9:30-10:00	Eric J Kostelich (Arizona State University, USA) A digital filtering framework for the Local Ensemble Transform Kalman Filter	Abstracts p. 90

Special Session <b>22</b>	<b>Topological and Variational Methods for Boundary Value Problems</b> Organizer(s): John R. Graef, Lingju Kong, Bo Yang	Location <b>REH-1</b>
8:00-8:30	Johnny Henderson (Baylor University, USA) Multiple solutions for a nonlocal perturbed elliptic problem of p-Kirchhoff type	Abstracts p. 96
8:30-9:00	Nickolai Kosmatov (University Of Arkansas at little Rock, USA) A fourth-order functional problem at resonance	Abstracts p. 97
9:00-9:30	Wong S James (The University of Hong Kong, Hong Kong) Solvability of Second Order Multi-Point Boundary Value Problems at Resonance	Abstracts p. 96
9:30-10:00	Marlene Frigon (University of Montreal, Canada) On a notion of category depending on a functional and an application to Hamiltonian systems	Abstracts p. 96

Special Session <b>23</b>	<b>Topological and Combinatorial Dynamics</b> Organizer(s): Lluís Alsedà, Francisco Balibrea Gallego, Piotr Oprocha	Location <b>GRC-H</b>
8:00-8:30	Jaroslav Smital (Silesian University, Czech Rep) Distributonal chaos – recent progress and open problems	Abstracts p. 104
8:30-9:00	Francisco Balibrea (University of Murcia, Spain) Li-Yorke chaos in rational difference equations	Abstracts p. 100
9:00-9:30	Marta Stefankova (Mathematical Institute of the Silesian University in Opava, Czech Rep) Strange chaotic triangular maps	Abstracts p. 105
9:30-10:00	Mohammad Javaheri (Siena College, USA) Maximally transitive semigroups of matrices	Abstracts p. 102

Special Session <b>24</b>	<b>Geometric Mechanics</b> Organizer(s): Tom Mestdag, Manuel de Leon, Frans Cantrijn, Aziz Hamdouni, Dina Razafindralandy, Jean-Claude Zambrini	Location <b>REH-5</b>
8:00-8:30	Mehdi Rafie-Rad (University of Mazandaran, Iran) Projective symmetry in Randers spaces	Abstracts p. 109
8:30-9:00	Dina Razafindralandy (LEPTIAB, France) Lie group theory in turbulence	Abstracts p. 109
9:00-9:30	Xiang Yu (Sichuan University, Peoples Rep of China) Twisted Angles for Central Configurations Formed By Two Twisted Regular Polygons	Abstracts p. 110
9:30-10:00	Marx Chhay (LOCIE, University of Savoie, France) Some applications of some geometric integrators	Abstracts p. 106

Special Session <b>25</b>	<b>Dynamics in Complex Biological Systems</b> Organizer(s): Bijoy K. Ghosh, Akif Ibraguimov, Qishao Lu, Jianzhong Su	Location <b>REH-6</b>
8:00-8:30	David Swigon (University of Pittsburgh, USA) Mathematical modeling of immune response to influenza infection	Abstracts p. 115
8:30-9:00	Chuan Xue (Ohio State University, USA) Multiscale analysis of bacterial chemotaxis	Abstracts p. 116
9:00-9:30	Judy Day (University of Tennessee, USA) Complex Immune Responses: Modeling & Control	Abstracts p. 112
9:30-10:00	Julia Arciero (Indiana University-Purdue University Indianapolis, USA) Investigating bacteria-immune dynamics in premature infants	Abstracts p. 111

Special Session <b>28</b>	<b>Analysis and Numerics of Differential Equations and Dynamical Systems in Mathematical Fluid Mechanics</b> Organizer(s): Changbing Hu, Ning Ju, Theodore Tachim-Medj	Location <b>REH-9</b>
8:00-8:30	Animikh Biswas (University of North Carolina-Charlotte, USA) Gevrey regularity for dissipative equations with applications to decay.	Abstracts p. 125
8:30-9:00	Zhiwu Lin (Georgia Institute of Technology, USA) Invariant manifolds of Euler equations	Abstracts p. 126
9:00-9:30	Xinwei Yu (University of Alberta, Canada) Global regularity results for 2D generalized MHD equations	Abstracts p. 128
9:30-10:00	Madalina Petcu (University of Poitiers, France) On the exponential decay of the power spectrum and the finite dimensionality for the solutions of the three dimensional primitive equations	Abstracts p. 127

Special Session <b>30</b>	<b>Recent Developments on Turbulence</b> Organizer(s): Eleftherios Gkioulekas, Michael Jolly	Location <b>POI-C</b>
8:00-8:30	Eleftherios Gkioulekas (University of Texas-Pan American, USA) Energy and potential enstrophy flux constraints in the two-layer quasi-geostrophic model	Abstracts p. 134
8:30-9:00	Leslie Smith (University of Wisconsin, Madison, USA) Characterizing the layer thickness in unit- and small-aspect-ratio rotating Boussinesq turbulence	Abstracts p. 135
9:00-9:30	Hussein Aluie (Los Alamos National Lab, USA) Non-linear cascades in rotating stratified Boussinesq flows	Abstracts p. 133
9:30-10:00	Benno Rumpf (Southern Methodist University, USA) A new instability that breaks the spatial homogeneity symmetry in wave turbulence	Abstracts p. 135

Special Session <b>31</b>	<b>Mathematical Models of Cancer and Cancer Therapy</b> Organizer(s): Yangjin Kim	Location <b>REH-7</b>
8:00-8:30	David Basanta (H. Lee Moffitt Cancer Center & Research Institute, USA) An agent based evolutionary model of prostate cancer	Abstracts p. 137
8:30-9:00	Andrea De Gaetano (Cnr Iasi BioMatLab, Italy) Stochastic Differential models of tumor spheroid growth	Abstracts p. 138
9:00-9:30	Seongwon Lee (Pohang University of Science and Technology, Korea) A Mathematical Model of Lung Cancer Progression	Abstracts p. 141
9:30-10:00	Duan Chen (Mathematical Biosciences Institute, USA) Hypoxia Inducible Factors mediate the inhibition of cancer by GM-CSF: A mathematical model	Abstracts p. 137

Special Session <b>63</b>	<b>Infinite Dimensional Dynamics and Applications</b> Organizer(s): James C. Robinson, Yuncheng You	Location <b>PAL-A</b>
8:30-9:00	Jose Valero (Universidad Miguel Hernandez, Spain) On the structure of the global attractor for reaction-diffusion equations	Abstracts p. 248
9:00-9:30	Alejandro Vidal-Lopez (University of Warwick, England) Moments and the Navier-Stokes equations	Abstracts p. 249
9:30-10:00	Shi Yanling (Southeast University, Peoples Rep of China) Quasi-Periodic Solutions for 1 Dimensional Generalized Boussinesq Equation	Abstracts p. 249

Special Session <b>64</b>	<b>Analysis of PDEs and Particle Systems: From Life Sciences, Economics and Materials Science</b> Organizer(s): Toyohiko Aiki, Nobuyuki Kenmochi, Adrian Muntean	Location <b>POI-D</b>
9:00-9:30	Takeshi T Fukao (Kyoto University of Education, Japan) Abstract theory of the variational inequality and the Lagrange multiplier	Abstracts p. 251
9:30-10:00	Toyohiko Aiki (Japan Women's university, Japan) One-dimensional concrete carbonation problem with nonlinear Henry's law	Abstracts p. 250

Special Session <b>67</b>	<b>Applied Analysis and Dynamics in Engineering and Sciences</b> Organizer(s): Thomas C Hagen, Janos Turi	Location <b>POI-A</b>
8:30-9:00	Jin Wang (Old Dominion University, USA) Analyzing viscous effects on wave motion	Abstracts p. 258
9:00-9:30	Shihchung Chiang (Chung Hua University, Taiwan) Numerical Optimal Unbounded Control with A Singular Integro-Differential Equation as a Constraint	Abstracts p. 255
9:30-10:00	Janos Turi (University of Texas at Dallas, USA) Critical Excitation and Control of Variational Inequalities	Abstracts p. 257

Special Session <b>72</b>	<b>Special Methods for Solving Systems of Non-linear Differential Equations and their Applications to Sciences and Engineering</b> Organizer(s): Mufid Abudiyab	Location <b>MAG-B</b>
8:00-8:30	Muhammad D Khan (Lahore University of Management Science, Pakistan) Conservation laws of some evolution equations via non variational approach	Abstracts p. 273
8:30-9:00	Sami Shahin (Southwest Minnesota State University, USA) A Reaction-Diffusion Model of Bovine Viral Diarrhea Virus (BVDV) Infection	Abstracts p. 274
9:00-9:30	Chaudry M Khalique (North-West University, Mafikeng Campus, So Africa) Solutions and Conservation Laws of a Coupled Kadomtsev-Petviashvili System	Abstracts p. 273
9:30-10:00	Wonlyul Ko (Korea university, Korea) The enzyme-catalysed reaction-diffusion system	Abstracts p. 273

Special Session <b>77</b>	<b>The Navier-Stokes Equations and Related Problems</b> Organizer(s): Sarka Necasova, Reimund Rautmann, Werner Varnhorn	Location <b>REH-3</b>
8:00-8:30	Maria Schonbek (UCSC, USA) On questions of decay for solutions to Liquid Crystals	Abstracts p. 289
8:30-9:00	Mimi Dai (University of California, Santa Cruz, USA) Some Properties of Solutions to Liquid Crystal Systems	Abstracts p. 287
9:00-9:30	Francesco Di Plinio (Indiana University, USA) Well-posedness of the Euler equations in planar convex domains	Abstracts p. 287
9:30-10:00	Shu Wang (Beijing University of Technology, Peoples Rep of China) On a New 3D Model for Incompressible Euler and Navier-Stokes Equations	Abstracts p. 290

Special Session <b>79</b>	<b>Numerical Methods based on Homogenization and on Two-Scale Convergence</b> Organizer(s): Emmanuel Frenod	Location <b>POI-B</b>
8:00-8:30	Molei Tao (California Institute of Technology, USA) Multiscale Geometric Integration of Deterministic and Stochastic Systems	Abstracts p. 297
8:30-9:00	Frederic Legoll (Ecole Nationale des Ponts et Chaussees, France) Variance reduction methods in stochastic homogenization	Abstracts p. 296
9:00-9:30	John Harlim (North Carolina State University, USA) Filtering partially observed multiscale systems with heterogeneous multiscale methods based reduced climate models	Abstracts p. 295
9:30-10:00	Pingbing Ming (AMSS, Peoples Rep of China) An Efficient Higher-order Heterogeneous Multiscale Methods for Elliptic Problems and Related Issue	Abstracts p. 297