

Sunday, July 1**13:30PM-15:30PM****Parallel Session 2**

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	Olivier Goubet (Universite Picardie Jules Verne, France) Attractors for weakly damped wave equations	Abstracts p. 9
14:00-14:30	Filippo Dell'Oro (Politecnico di Milano, Italy) Long-term analysis of strongly damped nonlinear wave equations	Abstracts p. 8
14:30-15:00	Kun Zhao (University of Iowa, USA) Global Dynamics of a Diffuse Interface Model for Solid Tumor Growth	Abstracts p. 11
15:00-15:30	Steven M Wise (University of Tennessee, USA) Efficient Numerical Methods for the Cahn-Hilliard-Brinkman Equation	Abstracts p. 11

Special Session 5	Hybrid Monte Carlo Organizer(s): Elena Akhmatskaya, J. M. Sanz-Serna	Location POI-C
13:30-14:00	Frank J Pinski (University of Cincinnati, USA) An Application of a Hybrid Monte Carlo Method in Path Space	Abstracts p. 26
14:00-14:30	David L Mobley (University of New Orleans, USA) Calculations of binding free energies with molecular simulations: Progress and challenges	Abstracts p. 26
14:30-15:00	Namhee Kim (New York University, USA) Monte Carlo Sampling of RNA 3D Graphs	Abstracts p. 25
15:00-15:30	Elena Akhmatskaya (Basque Centre for Applied Mathematics (BCAM), Spain) Generalized Shadow Hybrid Monte Carlo: from theory to useful tools	Abstracts p. 24

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	Nathan E Glatt-Holtz (Indiana University, USA) New Results for the Stochastic PDEs of Fluid Dynamics	Abstracts p. 49
14:00-14:30	Olivier Goubet (Universite Picardie Jules Verne, France) Viscous asymptotic models for water waves	Abstracts p. 49
14:30-15:00	Chun-Hsiung Hsia (National Taiwan University, Taiwan) Time periodic solutions of the Primitive equations of the large-scale ocean	Abstracts p. 49
15:00-15:30	Honghu Liu (Indiana University, USA) Center manifold reduction for stochastic partial differential equations	Abstracts p. 49

Special Session 13	Global Dynamics in Hamiltonian Systems Organizer(s): Rafael de la Llave, Tere.M-Seara	Location MAG-A
13:30-14:00	Rafael R Ruggiero Rodriguez (PUC-Rio, Brazil) Weak integrability of Hamiltonians in the two torus and rigidity	Abstracts p. 57
14:30-15:00	Marian Gidea (Northeastern Illinois University, USA) Some topological aspects of Aubry-Mather theory	Abstracts p. 55
15:00-15:30	Hsin-Yuan Huang (National Taiwan University, Taiwan) On the Action-Minimizing Triple Collision Orbits in the Planar Three-body Problem	Abstracts p. 56

Special Session 14	Mathematical Models in Biology and Medicine Organizer(s): Yang Kuang, Bingtuan Li, Jiaxu Li, Andrew Nevai	Location GRC-C
13:30-14:00	Urszula A Ledzewicz (Southern Illinois University, USA) Designing optimal combined chemotherapy and immunotherapy protocols for a model of tumor immune interactions under drug pharmacokinetics	Abstracts p. 62
14:00-14:30	Leonid Hanin (Georgia Institute of Technology, USA) Effects of Surgery and Chemotherapy on Growth of Metastases in Prostate Cancer: Evidence from the Natural History of the Disease Reconstructed through Mathematical Modeling	Abstracts p. 60
14:30-15:00	John D Nagy (Scottsdale Community College, USA) Evolution of uncontrolled proliferation and the angiogenic switch in cancer	Abstracts p. 63
15:00-15:30	Svetlana Bunimovich (Ariel University Center, Israel) A mathematical model of Imatinib and Interferonalpha combined treatment of chronic myeloid leukemia	Abstracts p. 59

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	Dariusz Idczak (University of Lodz, Poland) Fractional Sobolev spaces via Riemann - Liouville derivatives and some imbeddings	Abstracts p. 68
14:00-14:30	Marek Majewski (University of Lodz, Poland) Fractional du Bois-Reymond lemma and it's applications.	Abstracts p. 69
14:30-15:00	Laura Levaggi (Free University of Bolzano, Italy) Existence of sliding motions for nonlinear evolution equations in Banach spaces	Abstracts p. 68
15:00-15:30	Michael E Filippakis (University of Piraeus, Greece) Nodal and multiple constant sign solutions for equations with the p-Laplacian	Abstracts p. 67

Special Session 19	Waves and Convection Organizer(s): Sam Stechmann, Leslie Smith	Location REH-8
13:30-14:00	Shane Keating (Courant Institute of Mathematical Science, USA) The vertical structure of baroclinic turbulence in the ocean	Abstracts p. 85
14:00-14:30	Dimitrios Giannakis (New York University, USA) Capturing intermittent and low-frequency variability in high-dimensional data through nonlinear Laplacian spectral analysis	Abstracts p. 84
14:30-15:00	Ziemowit Malecha (University of New Hampshire, USA) A multiscale framework for analysis and simulation of the stratified wind-driven ocean surface boundary layer	Abstracts p. 86

Special Session 23	Topological and Combinatorial Dynamics Organizer(s): Lluís Alsedà, Francisco Balibrea Gallego, Piotr Oprocha	Location GRC-H
13:30-14:00	Andrew D Barwell (University of Birmingham, England) Omega-Limit Sets of Quadratic Maps on their Julia Sets	Abstracts p. 101
14:00-14:30	Judy A Kennedy (Lamar University, USA) Bizarre topology is natural in complex dynamical systems	Abstracts p. 103
14:30-15:00	Lori Alvin (University of West Florida, USA) Hofbauer Towers and Inverse Limit Spaces	Abstracts p. 100

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	Ana Bela Cruzeiro (Dep.Mathematics IST and GFMUL, Portugal) Stochastic Euler-Poincare reduction on Lie groups	Abstracts p. 107
14:00-14:30	Marc Arnaudon (University of Poitiers, France) Generalized Navier-Stokes flows	Abstracts p. 106
14:30-15:00	Christian Leonard (Universite Paris Ouest, France) Schrodinger problem and Ricci curvature of graphs	Abstracts p. 108
15:00-15:30	Gazanfer Unal (Yeditepe University, Turkey) Stochastic Methods for Navier-Stokes Equations	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	Jinzhi Lei (Tsinghua University, Peoples Rep of China) Neutrophil dynamics in response to chemotherapy and G-CSF	Abstracts p. 113
14:00-14:30	Thinh T Kieu (Texas Tech University, USA) Equilibria and linearization of the one-dimensional Forchheimer equation for incompressible two-phase flows	Abstracts p. 113
14:30-15:00	Yinghui Gao (BeiHang University, Peoples Rep of China) Bifurcations and chaos in a three dimensional discrete time Lotka-Volterra model	Abstracts p. 113
15:00-15:30	Ying Wu (Xi'an Jiaotong University, Peoples Rep of China) Effect of the channel block on the spatiotemporal dynamics in stochastic Hodgkin-Huxley neuronal networks	Abstracts p. 115

Special Session 28	Analysis and Numerics of Differential Equations and Dynamical Systems in Mathematical Fluid Mechanics Organizer(s): Changbing Hu, Ning Ju, Theodore Tachim-Medj	Location REH-9
13:30-14:00	Anna L Mazzucato (Penn State University, USA) Effective viscosity in dilute suspensions	Abstracts p. 127
14:00-14:30	Andrea Bertozzi (UCLA, USA) Dynamics of particle settling and resuspension in viscous liquids	Abstracts p. 125
14:30-15:00	Y. Charles Li (University of Missouri, USA) On the Arrow of Time	Abstracts p. 126
15:00-15:30	James Kelliher (UC Riverside, USA) Bounded vorticity, bounded velocity (Serfati) solutions to 2D Euler equations	Abstracts p. 126

Special Session 31	Mathematical Models of Cancer and Cancer Therapy Organizer(s): Yangjin Kim	Location REH-7
13:30-14:00	Thomas Hillen (University of Alberta, Canada) Are More Complicated Tumor Control Probability Models Better?	Abstracts p. 139
14:00-14:30	Marisa Eisenberg (Ohio State University, USA) Mechanistic modeling of myoferlin effects on cancer cell invasion	Abstracts p. 138
14:30-15:00	Katarzyna A Rejniak (Moffitt Cancer Research Insitute, USA) The interplay between microenvironmental heterogeneity and anticancer drug dynamics: a computational study	Abstracts p. 141
15:00-15:30	Heiko Enderling (Tufts University School of Medicine, USA) Non-Stem Cancer Cell Kinetics Modulate Solid Tumor Progression	Abstracts p. 138

Special Session 35	Qualitative Theory of Nonlinear ODEs and Applications Organizer(s): Fabio Zanolin	Location MAG-C
13:30-14:00	Shaobo Gan (Peking University, Peoples Rep of China) Star flows and singular hyperbolicity	Abstracts p. 157
14:00-14:30	Maurizio Garrione (SISSA - International School for Advanced Studies, Italy) Nonlinear first order systems in the plane with positively homogeneous principal term	Abstracts p. 157
14:30-15:00	Pierpaolo Omari (University of Trieste, Italy) Periodic solutions of the prescribed curvature equation	Abstracts p. 158
15:00-15:30	Saroj Panigrahi (University of Hyderabad, India) Liapunov-type integral inequalities for higher order dynamic equations on time scales	Abstracts p. 158

Special Session 45	Stochastic and Deterministic Dynamical Systems, and Applications Organizer(s): Tomas Caraballo, Jose Valero Cuadra, Maria Garrido-Atienza	Location GRC-B
13:30-14:00	Carey Caginalp (Brown University, USA) Analytical and Numerical Results on Escape of Brownian Particles	Abstracts p. 191
14:00-14:30	Wilfried Grecksch (Martin-Luther-University, Germany) A Fractional Stochastic Schrödinger Equation	Abstracts p. 192
14:30-15:00	Andreas Neuenkirch (University of Mannheim, Germany) SDEs driven by fractional Brownian motion: Continuous dependence on the Hurst parameter	Abstracts p. 193
15:00-15:30	Maria Garrido-Atienza (University of Seville, Spain) Fractional Stochastic Porous Media Equations	Abstracts p. 192

Special Session 49	Growth Models and Interface Dynamics Organizer(s): Alexander Nepomnyashchy, Tatiana Savin, Amy Novick-Cohen	Location PAL-CC
13:30-14:00	Shibin Dai (Michigan State University, USA) Motion of interfaces governed by the Cahn-Hilliard equation with highly disparate diffusion mobility	Abstracts p. 206
14:00-14:30	Darren G Crowdy (Imperial College London, England) Hollow vortices, capillary waves, and double quadrature domains	Abstracts p. 206
14:30-15:00	Baruch Meerson (Hebrew University of Jerusalem, Israel) Velocity fluctuations of noisy reaction fronts	Abstracts p. 208
15:00-15:30	Giovani L Vasconcelos (Federal University of Pernambuco, Brazil) Fingering in a channel and tripolar Loewner evolutions	Abstracts p. 209

Special Session 63	Infinite Dimensional Dynamics and Applications Organizer(s): James C. Robinson, Yuncheng You	Location PAL-A
13:30-14:00	Xinchu Fu (Shanghai University, Peoples Rep of China) Computer assisted rigorous proof of chaos in some infinite dimensional dynamical systems	Abstracts p. 247
14:00-14:30	Eric J Olson (University of Nevada, Reno, USA) Discrete Data Assimilation for the 2D Navier-Stokes Equations	Abstracts p. 247
14:30-15:00	Rana Parshad (King Abdullah University of Science and Technology, Saudi Arabia) global existence and finite time blow up in a class of stochastic non linear wave equations.	Abstracts p. 247
15:00-15:30	Volker Reitmann (St. Petersburg State University, Russia) Embedding of compact invariant sets of dynamical systems on infinite-dimensional manifolds into finite-dimensional spaces	Abstracts p. 247

Special Session 64	Analysis of PDEs and Particle Systems: From Life Sciences, Economics and Materials Science Organizer(s): Toyohiko Aiki, Nobuyuki Kenmochi, Adrian Muntean	Location POI-D
13:30-14:00	Mariya Ptashnyk (University of Dundee, Scotland, UK, Scotland) Elastic properties of a exoskeleton and homogenization of plywood structures	Abstracts p. 252
14:00-14:30	Kota Kumazaki (Tomakomai National College of Technology, Japan) On a mathematical model of moisture transport with a time-dependent porosity in concrete carbonation process	Abstracts p. 251
14:30-15:00	Daniel Onofrei (University of Houston, USA) Qualitative analysis of homogenization.	Abstracts p. 252
15:00-15:30	Noriaki Yamazaki (Kanagawa University, Japan) Optimal control problem of positive solutions to second order impulsive differential equations	Abstracts p. 253

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	George Avalos (University of Nebraska-Lincoln, USA) Minimal Norm Control Asymptotics and Numerical Approximations for the Null Controllability of Non-Standard Parabolic-Like PDE Dynamics	Abstracts p. 254
14:00-14:30	Constance Schober (University of Central Florida, USA) Stability of Homoclinic Orbits of the Nonlinear Schrödinger Equation	Abstracts p. 257
14:30-15:00	Annalisa Calini (National Science Foundation and College of Charleston, USA) On the stability of closed vortex filaments	Abstracts p. 254
15:00-15:30	Peter Hinow (University of Wisconsin - Milwaukee, USA) Pathogen evolution in switching environments: a hybrid dynamical system approach	Abstracts p. 255

Special Session 70	Modeling and Dynamics of Infectious Diseases Organizer(s): Abba Gumel, Tufail Malik	Location PAL-D
13:30-14:00	Maia Martcheva (University of Florida, USA) Avian Influenza: Modeling and implications for control	Abstracts p. 269
14:00-14:30	Anuj Mubayi (Northeastern Illinois University, USA) Evaluation of Diagnostic Test for Lymphatic Filariasis in Papua New Guinea using a Mathematical Model	Abstracts p. 269
14:30-15:00	Hao Liu (Arizona State University, USA) A data driven spatiotemporal rabies model for skunk and bat interaction in Northeast Texas	Abstracts p. 268
15:00-15:30	Zhisheng Shuai (University of Victoria, Canada) Global Dynamics of Cholera Models with Differential Infectivity	Abstracts p. 271

Special Session 72	Special Methods for Solving Systems of Non-linear Differential Equations and their Applications to Sciences and Engineering Organizer(s): Mufid Abudiab	Location MAG-B
13:30-14:00	James S Sochacki (James Madison University, USA) Polynomial ODEs for Conservation Laws	Abstracts p. 274
14:00-14:30	Devanayagam Palaniappan (Texas A&M University-Corpus Christi, USA) Analysis of a System of Reaction-Diffusion PDE Model	Abstracts p. 274
14:30-15:00	Christopher I Trombley (Texas A&M Corpus Christi, USA) Numerical Solutions for Weak Scattering in a Turbulent Fluid	Abstracts p. 274
15:00-15:30	Christina Martinez (Texas A&M University-Corpus Christi, USA) Approximate Solutions for 1-D Premixed Flame Propagation Model	Abstracts p. 273

Special Session 73	Mathematical Models for Upwelling Ocean Currents and Related Phenomena Organizer(s): David Rivas, Sherry Scott, Anna Ghazaryan	Location REH-1
13:30-14:00	Yan Wang (Rosenstiel School of Marine and Atmospheric Science/ University of Miami, USA) Identification and tracking of coherent Agulhas Current rings	Abstracts p. 277
14:00-14:30	Mohammad Farazmand (McGill University, Canada) Locating coherent structures in turbulent flows using the geodesic theory of transport barriers	Abstracts p. 275
14:30-15:00	Laura A Fiorentino (University of Miami, RSMAS, USA) Using Lagrangian Coherent Structures to understand coastal water quality	Abstracts p. 275
15:00-15:30	Maria J Olascoaga (RSMAS/UM, USA) Lagrangian transport analysis of the surface ocean circulation in the Gulf of Mexico	Abstracts p. 276

Special Session 79	Numerical Methods based on Homogenization and on Two-Scale Convergence Organizer(s): Emmanuel Frenod	Location POI-B
13:30-14:00	Ibrahima Faye (Universite Alioune Diop de Bambey, Senegal) Some numerical Simulations on sand transport	Abstracts p. 295
14:00-14:30	Antoine Rousseau (Inria, France) Numerical simulations of confinement for paralic ecosystems	Abstracts p. 297
14:30-15:00	Heiko H Berninger (Universität de Genève, Switzerland) Neutrino Transport in Core Collapse Supernovae by the Isotropic Diffusion Source Approximation	Abstracts p. 294
15:00-15:30	Manel Tayachi (INRIA & LJK, France) Design of a Schwarz coupling method for a di- mensionally heterogeneous problem	Abstracts p. 297

Contributed Session 01	Equations and Qualitative Analysis Chair(s): Yaw Chang	Location REH-2
13:30-13:50	Narknyul Choi (Kumoh National Institute of Technology, Korea) Triple collision dynamics in chaotic photoionization of planar helium	Abstracts p. 310
13:50-14:10	Andrea Cristina Prokopczyk Arita (UNESP - Universidade Estadual Paulista, Brazil) Almost periodicity in hereditary systems of second order	Abstracts p. 311
14:10-14:30	Adam M Fox (University of Colorado, Boulder, USA) Decay and Destruction of Invariant Tori in Volume Preserving Maps	Abstracts p. 310
14:30-14:50	Jaydev Dabas (Indian Institute of Technology Roorkee, India) Existence and uniqueness of solution to an integral boundary value problem for impulsive fractional functional differential equations with infinite delay	Abstracts p. 310
14:50-15:10	Karthikeya Sameer Kumar Mamillapalle (Daytona State College, USA) Existence and uniqueness of bounded solution for nonlinear functional differential equation with anticipation and retardation	Abstracts p. 311

Contributed Session 02	ODEs and Applications Chair(s): Zhaosheng Feng	Location REH-3
13:30-13:50	Abdallah A Badr (Alexandria University, Egypt) Monte - Carlo Galerkin Approximation of Fractional Stochastic Integro-Differential Equation	Abstracts p. 313
13:50-14:10	Dulat D Dzhumabaev (Institute of Mathematics MES of Kazazkstan, Kazakhstan) The parametrization method of research and solving of boundary value problems for integro-differential equations	Abstracts p. 314
14:10-14:30	Dmitriy Chebanov (City University of New York, USA) New class of exact solutions for the equations of motion of a chain of n rigid bodies	Abstracts p. 313
14:30-14:50	Dan Comanescu (West University of Timisoara, Romania) Geometrical dissipation for dynamical systems	Abstracts p. 314
14:50-15:10	Susmita Sadhu (Southwest Minnesota State University, USA) Uniform asymptotic expansions of solutions of a class of singularly perturbed boundary value problems	Abstracts p. 315

Contributed Session 10	Bifurcation and Chaotic Dynamics Chair(s): Wei Feng	Location REH-4
13:30-13:50	John Hogan (University of Bristol, England) Bifurcations of piecewise smooth flows: perspectives, methodologies and open problems	Abstracts p. 332
13:50-14:10	Antonio Palacios (San Diego State University, USA) Bifurcation and Asymptotic Analysis of a Coupled Gyroscope System	Abstracts p. 333
14:10-14:30	Elisabet Vela Felardo (Universidad de Sevilla, Spain) Focus-Center-Limit Cycle Bifurcation in Discontinuous Planar Piecewise Linear Systems Without Sliding	Abstracts p. 333
14:30-14:50	Hong-Kun Zhang (University of Massachusetts Amherst, USA) Diffusions in chaotic billiards	Abstracts p. 333
14:50-15:10	Jonq Juang (National Chiao Tung University, Taiwan) Multi-state and Multi-stage Synchronization of Hindmarsh-Rose Neurons with Excitatory Chemical and Electrical Synapses	Abstracts p. 332