

Sunday, July 1**10:00AM-12:00PM****Parallel Session 1**

Special Session 5	Hybrid Monte Carlo Organizer(s): Elena Akhmatkaya, J. M. Sanz-Serna	Location POI-C
10:00-10:30	Robert D Skeel (Purdue University, USA) Mass Tensor Molecular Dynamics and Hybrid Monte Carlo	Abstracts p. 26
10:30-11:00	Vassilios Stathopoulos (University College London, England) Riemann Manifold Hybrid Monte Carlo and alternative metrics	Abstracts p. 26
11:00-11:30	Martin Burda (University of Toronto, Canada) Hamiltonian Monte Carlo with Endogenous Splitting	Abstracts p. 24
11:30-12:00	J M Sanz-Serna (University of Valladolid, Spain) Hybrid Monte Carlo on Hilbert spaces	Abstracts p. 26

Special Session 11	Advances in Classical and Geophysical Fluid Dynamics Organizer(s): Madalina Petcu, Roger Temam, Shouhong Wang	Location GRC-I
10:00-10:30	Jerry L Bona (University of Illinois at Chicago, USA) A model equation for water waves with dissipation	Abstracts p. 48
10:30-11:00	Mickael Chekroun (UCLA, USA) Invariant Measures for Dissipative Dynamical Systems: Abstract Results and Applications	Abstracts p. 48
11:00-11:30	Bin Cheng (Arizona State University, USA) Singular limits of geophysical fluid dynamics in spherical and bounded domains.	Abstracts p. 48
11:30-12:00	Houssam Chrayteh (Poitiers University, France) Qualitative properties of eigenvectors related to multivoque operators	Abstracts p. 49

Special Session 13	Global Dynamics in Hamiltonian Systems Organizer(s): Rafael de la Llave, Tere.M-Seara	Location MAG-A
10:00-10:30	Vered Rom-Kedar (The Weizmann institute, Israel) A Saddle in a Corner - A Model of Collinear Triatomic Chemical Reactions	Abstracts p. 57
10:30-11:00	Anton Gorodetski (UC Irvine, USA) On stochastic sea of the standard map	Abstracts p. 55
11:00-11:30	Ludovic L Rifford (University of Nice, France) Geometric control and dynamical systems	Abstracts p. 57
11:30-12:00	George Haller (McGill University, Canada) Generalized KAM cuves in time-aperiodic Hamiltonian systems	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
10:00-10:30	Richard Bertram (Florida State University, USA) The Dual Oscillator Model for Pancreatic Islets	Abstracts p. 59
10:30-11:00	Andrea De Gaetano (Cnr Iasi BioMatLab, Italy) Interpretation of the IVGTT by means of a distributed-controller model of the endocrine pancreas	Abstracts p. 60
11:00-11:30	Changbing Hu (University of Louisville, USA) Modeling the distribution of insulin in pancreas	Abstracts p. 61
11:30-12:00	Jiaxu Li (University of Louisville, USA) Modeling impulsive injections of insulin analogues: towards artificial pancreas	Abstracts p. 62

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
10:00-10:30	Nasiruddin N Ahmed (University of Ottawa, Canada) Optimal Feedback Control for Differential Inclusions on Banach Spaces	Abstracts p. 66
10:30-11:00	Stanislaw Migorski (Jagiellonian University, Krakow, Poland) Nonlinear subdifferential inclusions with applications to contact mechanics	Abstracts p. 69
11:00-11:30	Richard J Marchand (Slippery Rock University, USA) Boundary control and hidden trace regularity of a semigroup associated with a beam equation and non-dissipative boundary conditions	Abstracts p. 69
11:30-12:00	Volker Reitmann (St. Petersburg State University, Russia) Asymptotic behavior of solutions to a coupled system of Maxwells equations and a controlled differential inclusion	Abstracts p. 70

Special Session 19	Waves and Convection Organizer(s): Sam Stechmann, Leslie Smith	Location REH-8
10:00-10:30	Samuel Stechmann (University of Wisconsin-Madison, USA) Nonlinear Dynamics and Regional Variations in the MJO Skeleton	Abstracts p. 87
10:30-11:00	Juliana Dias (PSD - ESRL/NOAA, USA) Modulation of shallow water equatorial waves due to a varying equivalent height background	Abstracts p. 84
11:00-11:30	Gerardo Hernandez-Duenas (University of Wisconsin, USA) Minimal models for precipitating organized convection	Abstracts p. 85
11:30-12:00	Leslie Smith (University of Wisconsin, Madison, USA) Tropical cyclogenesis and vertical shear in a moist Boussinesq model	Abstracts p. 87

Special Session 23	Topological and Combinatorial Dynamics Organizer(s): Lluís Alsedà, Francisco Balibrea Gallego, Piotr Oprocha	Location GRC-H
10:00-10:30	Jan P Boronski (Tuskegee University, USA) On dynamics of surface homeomorphisms with invariant continua	Abstracts p. 101
10:30-11:00	John C Mayer (University of Alabama at Birmingham, USA) Central Strips of Sibling Leaves in Laminations of the Unit Disk	Abstracts p. 104
11:00-11:30	Roland Gunesch (TU Darmstadt University, Germany) Ergodic theory and topological intersections as a tool to solve geometrical problems	Abstracts p. 102
11:30-12:00	Byungik Kahng (University of North Texas at Dallas, USA) Devaney Chaos and Singularities of Invertible Piecewise Isometric Dynamics	Abstracts p. 102

Special Session 24	Geometric Mechanics Organizer(s): Tom Mestdag, Manuel de Leon, Frans Cantrijn, Aziz Hamdouni, Dina Razafindralandy, Jean-Claude Zambrini	Location REH-5
10:00-10:30	Anthony M Bloch (University of Michigan, USA) The geometry of integrable and gradient flows and dissipation	Abstracts p. 106
10:30-11:00	David Martin de Diego (ICMAT, Spain) On Discrete mechanics for optimal control theory	Abstracts p. 108
11:00-11:30	Juan Carlos Marrero (University of La Laguna, Spain) Hamilton-Jacobi theory and hamiltonian systems with respect to fiber-wise linear Poisson structures	Abstracts p. 108
11:30-12:00	Jean-Claude Zambrini (GFMUL, Portugal) Stochastic Geometric Mechanics	Abstracts p. 110

Special Session 25	Dynamics in Complex Biological Systems Organizer(s): Bijoy K. Ghosh, Akif Ibragimov, Qishao Lu, Jianzhong Su	Location REH-6
10:00-10:30	Janet Best (Ohio State University, USA) Dynamics of sleep-wake states: a stochastic process, random graph model	Abstracts p. 112
10:30-11:00	Yixin Guo (Drexel University, USA) Standing and travelling patterns in a neural field model	Abstracts p. 113
11:00-11:30	Jonathan Bell (University of Maryland Baltimore County, USA) Determining the conductance for a neuronal cable model defined on a tree graph via a boundary control method	Abstracts p. 112
11:30-12:00	Yuncheng You (University of South Florida, USA) Robustness of global dynamics for reversible Schnackenberg equations	Abstracts p. 116

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
10:00-10:30	Changbing Hu (University of Louisville, USA) Some mathematical theory of viscous Camassa-Holm equations	Abstracts p. 126
10:30-11:00	Hongjie Dong (Brown University, USA) On a 1D alpha-patch model	Abstracts p. 125
11:00-11:30	Nathan E Glatt-Holtz (Indiana University, USA) Parameter Estimation for Nonlinear Stochastic Partial Differential Equations	Abstracts p. 125
11:30-12:00	Florentina Tone (University of West Florida, USA) On the Long-time Stability of the Implicit Euler Scheme for the 2d Thermohydraulics Equations	Abstracts p. 127

Special Session 31	Mathematical Models of Cancer and Cancer Therapy Organizer(s): Yangjin Kim	Location REH-7
10:00-10:30	Urszula A Ledzewicz (Southern Illinois University, USA) Robustness and sensitivity of optimal protocols for mathematical models for multi-drug cancer treatments	Abstracts p. 141
10:30-11:00	Yang Kuang (Arizona State University, USA) A clinical data validated mathematical model of prostate cancer growth with hormone therapy	Abstracts p. 140
11:00-11:30	Yangjin Kim (KonKuk University, Korea) Signal transduction pathways in the growth and invasion of glioblastoma: A mathematical model	Abstracts p. 140
11:30-12:00	Bei Hu (University of Notre Dame, USA) PDE tumor models - mathematical analysis and numerical method	Abstracts p. 139

Special Session 35	Qualitative Theory of Nonlinear ODEs and Applications Organizer(s): Fabio Zanolin	Location MAG-C
10:00-10:30	Alberto Boscaggin (SISSA - International School for Advanced Studies, Italy) Positive solutions to second order ODEs with indefinite weight: multiplicity and complex dynamics	Abstracts p. 156
10:30-11:00	Lakshmi Burra (JNT University, India) Chaotic dynamics in some pendulum type equations	Abstracts p. 156
11:00-11:30	Francesca Dalbono (CMAF, University of Lisbon, Portugal) Radial solutions of Dirichlet problems with concave-convex nonlinearities	Abstracts p. 157
11:30-12:00	Nicholas J Fewster (UNSW, Australia) Existence of solutions to second order boundary value problems.	Abstracts p. 157

Special Session 45	Stochastic and Deterministic Dynamical Systems, and Applications Organizer(s): Tomas Caraballo, Jose Valero Cuadra, Maria Garrido-Atienza	Location GRC-B
10:00-10:30	Francisco Balibrea (University of Murcia, Spain) Lyapunov exponents for autonomous and non-autonomous systems	Abstracts p. 191
10:30-11:00	Juan V Gutierrez Santacreu (Universidad de Sevilla, Spain) On the global attractor for the Kazhikhov-Smagulov equations	Abstracts p. 192
11:00-11:30	Hyejin Kim (University of Michigan, Ann Arbor, USA) Features of Fast Living: On the Weak Selection for Longevity in Degenerate Birth-Death Processes.	Abstracts p. 193
11:30-12:00	Tomas Caraballo (Universidad de Sevilla, Spain) Asymptotic behaviour of lattice systems perturbed by additive noise	Abstracts p. 191

Special Session 49	Growth Models and Interface Dynamics Organizer(s): Alexander Nepomnyashchy, Tatiana Savin, Amy Novick-Cohen	Location PAL-CC
10:00-10:30	Lavi Karp (ORT Braude College, Israel) Non-uniqueness of quadrature domains	Abstracts p. 207
10:30-11:00	Erik Lundberg (Purdue University, USA) Quadrature domains in interface dynamics	Abstracts p. 208
11:00-11:30	Dmitry Khavinson (University of South Florida, USA) Propagation of singularities of solutions of linear PDE	Abstracts p. 207
11:30-12:00	Michiaki Onodera (Tohoku University, Japan) A moment-preserving flow for surfaces and its applications	Abstracts p. 209

Special Session 63	Infinite Dimensional Dynamics and Applications Organizer(s): James C. Robinson, Yuncheng You	Location PAL-A
10:00-10:30	David Cheban (State University of Moldova, Moldova) Markus-Sell's theorem for infinite dimensional asymptotically almost periodic systems.	Abstracts p. 246
10:30-11:00	Alexey Cheskidov (University of Illinois at Chicago, USA) Uniform global attractor of the 3D Navier-Stokes equations	Abstracts p. 246
11:00-11:30	Mimi Dai (University of California, Santa Cruz, USA) Norm inflation for incompressible magneto-hydrodynamic system in $\dot{B}_{\infty}^{-1,\infty}$	Abstracts p. 246
11:30-12:00	Francesco Di Plinio (Indiana University, USA) Time-dependent attractors for the oscillon equation	Abstracts p. 246

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
10:00-10:30	Nobuyuki Kenmochi (School of Education, Bukkyo University, Japan) Revival Full Model of Human and Economic Activities in Disaster regions	Abstracts p. 251
10:30-11:00	Risei Kano (Kochi University, Japan) Solvability of the tumor invasion model	Abstracts p. 251
11:00-11:30	Michael M Melgaard (Dublin Institute of Technology, Ireland) Solutions to the Kohn-Sham model for heavy atoms	Abstracts p. 252
11:30-12:00	Hiroshi Watanabe (Salesian Polytechnic, Japan) Continuous dependence of entropy solutions to strongly degenerate parabolic equations with discontinuous coefficients	Abstracts p. 253

Special Session 70	Modeling and Dynamics of Infectious Diseases Organizer(s): Abba Gumel, Tufail Malik	Location PAL-D
10:00-10:30	Jane M Heffernan (York University, Canada) The effects of pre-existing immunity on infectious diseases	Abstracts p. 268
10:30-11:00	Miranda I Teboh-Ewungkem (Lafayette College, USA) Heterogeneity in the infectiousness of humans in the dynamics of malaria transmission and control.	Abstracts p. 271
11:00-11:30	Yang Kuang (Arizona State University, USA) Mathematical insights in evaluating effectiveness of interventions for HIV prevention	Abstracts p. 268
11:30-12:00	Tufail Malik (University of Manitoba, Canada) The Impact of an Imperfect Vaccine and Pap Cytology Screening on the Transmission Dynamics of Human Papillomavirus and Cervical Cancer.	Abstracts p. 269

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
10:00-10:30	Guy Bernard (Midwestern State University, USA) Global existence to the Navier-Stokes equations through a diffusive upper solution.	Abstracts p. 272
10:30-11:00	Inkyung Ahn (Korea University, Korea) Ratio-dependent predator-prey model with infection in prey population	Abstracts p. 272
11:00-11:30	Nicolae Tarfulea (Purdue University Calumet, USA) Quasilinear Differential Equations in Exterior Domains and Application	Abstracts p. 274
11:30-12:00	Mufid Abudiab (Texas A&M University-Corpus Christi, USA) Modeling of the Dynamics of Client-Centered Health Care	Abstracts p. 272

Special Session 73	Mathematical Models for Upwelling Ocean Currents and Related Phenomena Organizer(s): David Rivas, Sherry Scott, Anna Ghazaryan	Location REH-1
10:00-10:30	Andrew J Willmott (National Oceanography Centre, England) An overview of models for the opening of coastal polynyas	Abstracts p. 277
10:30-11:00	Paul Choboter (California Polytechnic State University, USA) The effect of bathymetric profile on the structure of coastal ocean upwelling	Abstracts p. 275
11:00-11:30	Kenneth M Golden (University of Utah, USA) Sea ice processes in Antarctic polynyas	Abstracts p. 276
11:30-12:00	David Rivas (CICESE, Mexico) Coastal variability and Lagrangian circulation in Todos Santos Bay and off Baja California during Spring-Summer 2007	Abstracts p. 277

Special Session 79	Numerical Methods based on Homogenization and on Two-Scale Convergence Organizer(s): Emmanuel Frenod	Location POI-B
10:00-10:30	Emmanuel Frenod (Universite de Bretagne Sud et Inria, France) Synthetic introduction to homogenization based numerical methods	Abstracts p. 295
10:30-11:00	Yun Bai (EPFL, Switzerland) Reduced basis finite element heterogeneous multiscale method	Abstracts p. 294
11:00-11:30	Patrick Henning (University of Münster, Germany) Error control for heterogeneous multiscale approximations of nonlinear monotone problems	Abstracts p. 296
11:30-12:00	Zakaria Habibi (Inria Lille, France) Reduced basis method in the numerical homogenization of a nonlinearly coupled system. Application to nuclear waste storage.	Abstracts p. 295

Contributed Session 01	Equations and Qualitative Analysis Chair(s): Yaw Chang	Location REH-2
10:00-10:20	Petre Birtea (West University of Timisoara, Romania) Stability of equilibria for the $so(4)$ free rigid body	Abstracts p. 310
10:20-10:40	Luis Franco (Universidad Autonoma Metropolitana - Cuajimalpa, Mexico) Stability of fixed points for periodic Hamiltonian systems.	Abstracts p. 311
10:40-11:00	Cemil Tunc (Yuzuncu Yil University, Turkey) On the stability of solutions of a class of neutral differential equations with multiple deviating arguments	Abstracts p. 312
11:00-11:20	Pai Song (Old Dominion University, USA) An analytical approach to the stability of horizontally sheared flow	Abstracts p. 311

Contributed Session 02	ODEs and Applications Chair(s): Zhaosheng Feng	Location REH-3
10:00-10:20	Stephen Baigent (UCL, England) Geometry of invariant surfaces of Lotka-Volterra systems	Abstracts p. 313
10:20-10:40	Stephen Baigent (UCL, England) Split-Lyapunov stability of Lotka-Volterra system	Abstracts p. 313
10:40-11:00	Kishor J Shinde (Sant Gadge Baba Amravati University, India) Criteria For Determining The Limit Point Case And Limit Circle Case For Singular Sturm-Liouville Differential Operators	Abstracts p. 315
11:00-11:20	Judita Dascal (University of Luxembourg, Luxembourg) Equality problems in a class of conjugate means	Abstracts p. 314
11:20-11:40	Kailash C. Patidar (University of the Western Cape, So Africa) A fitted numerical method to solve a mathematical model describing TB dynamics	Abstracts p. 315

Contributed Session 10	Bifurcation and Chaotic Dynamics Chair(s): Wei Feng	Location REH-4
10:00-10:20	Fatma Aydogmus (Istanbul University, Turkey) Gursev Instantons Under the Quantum Fluctuation in Phase Space	Abstracts p. 332
10:20-10:40	Remy Magloire Etoua (Ecole Polytechnique de Yaounde, Cameroon) The study of the standard families of unfoldings of the nilpotent saddle of codimension 2 and 3 whose x-axis is invariant.	Abstracts p. 332
10:40-11:00	Javier Ros (University of Seville, Spain) A fold-Hopf-like bifurcation in piecewise linear continuous differential systems with symmetry	Abstracts p. 333
11:00-11:20	Virginie De Witte (Ghent University, Belgium) Numerical normal forms for limit cycles	Abstracts p. 332