CHAOS 2017

PROGRAM

10th Chaotic Modeling and Simulation International Conference

30 May – 2 June 2017

Barcelona, Spain

Preface
10th Chaotic Modeling and Simulation
International Conference

30 May – 2 June 2017, Barcelona, Spain

It is our pleasure to welcome the guests, participants and contributors to the 10th International Conference (CHAOS2017) on Chaotic Modeling, Simulation and Applications. We support the study of nonlinear systems and dynamics in an interdisciplinary research field and very interesting applications will be presented. We intend to provide a widely selected forum to exchange ideas, methods, and techniques in the field of Nonlinear Dynamics, Chaos, Fractals and their applications in General Science and in Engineering Sciences.

The principal aim of CHAOS2017 International Conference is to expand the development of the theories of the applied nonlinear field, the methods and the empirical data and computer techniques, and the best theoretical achievements of chaotic theory as well.

Chaotic Modeling and Simulation Conferences continue to grow considerably from year to year thus making a platform well established to present and disseminate new scientific findings and interesting applications. We thank all the contributors to the success of this conference and especially the authors of the *Book of Abstracts* of CHAOS 2017.

Special thanks to the Scientific Committee, the ISAST Committee and Yiannis Dimotikalis, the Conference Secretary Mary Karadima and all the members of the Secretariat.

May 2017
Christos H. Skiadas
Conference Chair

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10th Chaotic Modeling and Simulation International Conference (CHAOS2017)

30 May - 2 June, 2017, CASA CONVALESCÈNCIA of Universitat Autònoma de Barcelona, Spain

Program

Session / Room	Date / Time	Authors / Talk Title / Event	Authors / Talk Title / Event
	8:00-9:00	**Tuesday May 30**	**Registration**
AULA MAGNA	9:00-9:30	**Opening Ceremony** **New Chaos directions**	
AULA MAGNA	9:30-10:20	**Plenary Session (Chair: Gheorghe D. Mateescu)** **Ferdinand Verhulst** University of Utrecht, Dept of Mathematics, The Netherlands	**Recurrence and Diffusion in FPU Chains with Alternating Masses**
AULA MAGNA	10:20-11:10	**Plenary Session (Chair: Nikolaos D. Katopodes)** **Leszek Sirko** Institute of Physics, Polish Academy of Sciences, Poland	**Power spectrum analysis and missing level statistics of microwave graphs with violated and preserved time reversal invariance**
	11:10-11:40		**Coffee Break**
AULA MAGNA	11:40-12:30	**Plenary Session (Chair: Gheorghe D. Mateescu)** **Ralph Gregor Andrzejak** Dept of Information Technologies, Universitat Pompeu Fabra, Spain & Institute for BioEngineering of Catalonia (IBEC), Spain	**Chimeras: Do They Exist in the Real World?**
AULA MAGNA	12:30-13:20	**Invited Session (Chair: Ralph Gregor Andrzejak)** **Chris G. Antonopoulos** University of Essex, Dept of Mathematical Sciences, UK	**Modelling the Brain: From Dynamical Complexity to Neural Synchronisation, Chimera-like States and Information Flow Capacity**
	13:20-14:30		**Lunch**

SCS1	Tuesday May 30	SPECIAL AND CONTRIBUTED SESSIONS SCS1	
Room 1	14:30-16:00	**Workshop Chairs: Tomáš Lučivjanský, Michal Hnatič, Juha Honkonen**	**Stochastic theory of turbulence and related phenomena: field-theoretic approach I**
		Renormalization schemes and the double expansion in the field theory of forced turbulence	Juha Honkonen
		Anomalous Scaling in the Compressible Kazantsev-Kraichnan Model with Spatial Parity Violation	Marian Jurčišin, Eva Jurčišinová, Martin Menkyna
		Calculation of the turbulent Prandtl number in generalized stochastic MHD model	M. Hnatič, P. Zalom
Room 2	14:30-16:00	**Special Session Chair: Ralph Gregor Andrzejak**	**Characterizing spatio-temporal neuronal dynamics in epilepsy**
		Common source as a possible explanation of hyper-synchronous seizure state	Dimitris Kugiumtzis
		Post-surgical seizure control of epilepsy patients: The role of nonlinear EEG interrelation and quantitative image analysis	Christian Rummel
		Studying network mechanisms of ictogenesis reveals quantitative prognostic markers for epilepsy surgery	Marc Goodfellow
Room 3	14:30-16:00	**Chair: Arkady Kitover**	**Theoretical approaches**
		Essential spectra of non-invertible weighted composition operators	Arkady Kitover
		On a certain generalization of the iterated function systems	Filip Strobin
		On a Tricomplex Distance Estimation for Generalized Multibrot Sets	Dominic Rochon
		Non-integrability of the Huang–Li nonlinear financial model	Wojciech Szuminski
		Forecasting Chaotic Business Cycles Perturbed by Noise	James M. Haley
Room 4	14:30-16:00	**Chair: Vladimir Kalashnikov, Co-Chair: Nada Jevtic**	**Optical Systems**
		Optical spin turbulence in half-light half-matter Bose systems	Sergei S. Gavrilov
		Turbulence of Optical Dissipative Solitons	Vladimir L. Kalashnikov, Evgeni Sorokin
		Chaotic dynamics of ice crystals scattering sunlight	Adriana P. B. Tufaile, Timm A. Vanderelli, Alberto Tufaile
		Combining nonlinear noise reduction with in-painting in the analysis of variable star light curves	N.Jevtic, R.Semon, T. Keiper, P.Stine
	16:00-16:30	**Coffee Break**	

SCS2	Tuesday May 30	SPECIAL AND CONTRIBUTED SESSIONS SCS2	
Room 1	16:30-17:30	**Workshop Chairs: Tomáš Lučivjanský, Michal Hnatič, Juha Honkonen**	**Stochastic theory of turbulence and related phenomena: field-theoretic approach II**
		Critical behavior of direct percolation process in the presence of compressible velocity field	Juha Honkonen, Tomáš Lučivjanský, Viktor Škultéty
		Critical behaviour and turbulent transfer: nonperturbative renormalization group approach	Michal Hnatič, Georgii Kalagov
Room 2	16:30-17:30	**Chair: Tatyana S. Krasnopolskaya**	**Oscillators I**
		Chaos in interaction of a shaker and an oscillator	Tatyana S. Krasnopolskaya, Evgeniy D. Pechuk
		Chimeralike states in a network of oscillators under attractive and under repulsive global coupling	Arindam Mishra, Chittaranjan Hens, Mridul Bose, Prodyot K. Roy, Syamal K. Dana
		High Frequency Voltage Control Oscillator for Chaotic Electronic Phase Loop Look	C. Rouifed, A. Ouslimani, A.Kasbari, M. Laghrouche
		Vibrational Resonance in Energy Harvesting Systems	Mattia T. Coccolo, Jesús S. Seoane, Miguel A. F. Sanjuán
Room 3	16:30-17:30	**Chair: Valeriy S. Abramov**	**Fractal Systems I**
		An Algorithm to Find the Smallest Disks Enclosing Graph-Directed Fractals	Ali DENIZ, Gökçe ÇAKMAK
		An efficient estimator of fractal dimension of self-avoiding curves	Andriy Kryvko, Lucero P. Damian Adame, Didier Samayoa Ochoa, Tetyana Kryshtab
		Behavior of Coupled Fractal Structures and Their Attractors in the Model Nanosystem	Olga P. Abramova, Andrii V. Abramov
Room 4	16:30-17:30	**Chair: Gabriel V. Orman**	**Stochasic I**
		New aspects regarding to some stochastic concepts needful in the study of the systems	Gabriel V. Orman, Irinel Radomir, Sorina-Mihaela Stoian
		Stochastic-Resonance-like phenomena in a class of biologically inspired generic models	Vasileios Basios
		Modeling and simulation of human death probability density	Christos H. Skiadas, Charilaos Skiadas

SCS3	Tuesday May 30	SPECIAL AND CONTRIBUTED SESSIONS SCS3	
Room 1	17:30-19:00	**Workshop Chairs: Tomáš Lučivjanský, Michal Hnatič, Juha Honkonen**	**Stochastic theory of turbulence and related phenomena: field-theoretic approach III**
		Critical exponents of directed percolation: Three-loop approximation	L. Ts. Adzhemyan, M. Hnatič, M.V. Kompaniets, T. Lučivjanský, L. Mižišin
		Field theoretical model of general vector admixtures advected by fully developed turbulent flows	Peter Zalom, Michal Hnatič
		Passive advection of a vector field: effect of strong compressibility	N. V. Antonov, N. M. Gulitskiy, M. M. Kostenko, T. Lučivjanský
Room 2	17:30-19:00	**Chair: Olga P. Abramova**	**Dynamical Systems - Fractals**
		Cosmological Parameters and Higgs Boson in a Fractal Quantum System	Valeriy S. Abramov
		Experimental evidence of wave chaos signature in a microwave cavity cylinder resonator with fractures of side surface	El' M. Ganapolskii, Zoya E. Eremenko
		Fractal Approximants on the Circle	M. A. Navascues, S. Jha, A. K. B. Chand, M. V. Sebastain
		Multifractal Analysis of a DNA Based Molecular Transistor	Sohrab Behnia, Samira Fathizadeh, Javid Ziaei
		A computational approach to locate crossing/sliding regions and their basins of attraction of discontinuous dynamical systems	A. Colombo, N. Del Buono, L. Lopez, A. Pugliese
Room 3	17:30-19:00	**Special Session Chairs:** **Florentino Borondo, Rosa M. Benito and Fabio Revuelta**	**Phase space structures and chaotic dynamics**
		Frequency analysis of the laser driven nonlinear dynamics of HCN	A. Lopez-Pina, J. C. Losada, R. M. Benito, F. Borondo
		Quantum correspondence of classical phase space structures in the correlation diagram of eigenenergies versus Planck constant	H. Párraga, F. J. Arranz, R. M. Benito, F. Borondo
		The Geometry of Transition States	F. Revuelta, T. Bartsch, R. M. Benito, F. Borondo
		Effective computation of the dynamics near a periodic orbit	Àngel Jorba
		Oscillatory orbits in the elliptic restricted planar three body problem	Tere M. Seara
		Symbolic dynamics from higher-dimensional chaotic scattering data	Kevin A. Mitchell, Spencer Smith, Joshua Arenson, Sulimon Sattari
Room 4	17:30-19:00	**Special Session Chair: Alexander M. Krot**	**MOST program papers**
		An explanation of stability of extrasolar systems based on the universal stellar law	Alexander M. Krot
		Structure and system of the poetic literary texts of V. S. Vysotsky: Chaos or order?	Palina P. Tkachova
		New Method for Constructing Solutions of Nonlinear Partial Differential Equations	Iosif Andrushkevich
		Representation of N-soliton of Korteweg-de Vries equation as a superposition of N soliton solutions of the Korteweg-de Vries equation	Yuliya F. Novik
		About The Fractal Compression Of Three-Dimensional Image Based On Quaternion Algebra	Veronica Kozhukh
	19.00-19.30	**Welcome Reception**	

Wednesday May 31

SCS4	Wednesday May 31	SPECIAL AND CONTRIBUTED SESSIONS SCS4	
Room 1	9.00-10.30	**Chair: Ángela Jiménez-Casas**	**Models and Modeling I**
		Inertial Manifold of the Nonlinear Dynamical System Governing a Thermosyphon Model	Ángela Jiménez-Casas
		Modeling of summarization process according to basic concepts of text invariants	Elena Y. Aivas (Buriak), Olga V. Lazarenko, Dmitrii I. Panchenko
		On quasi-periodic solutions associated with the extended nonlinear feedback loop in the five-dimensional non-dissipative Lorenz model	Sara Faghih-Naini, Bo-Wen Shen
		New Method for Constructing Solutions of Nonlinear Partial Differential Equations	Iosif Andrushkevich
		Operative Scheme of the Short-Range Complex Weather Forecasting and Its Applications to Prediction in Medicine and in Electric Power Industry	Philipp L. Bykov, Vladimir A. Gordin
Room 2	9.00-10.30	**Chair: Valery Gaiko**	**Bifurcation**
		Centre Bifurcations of Periodic Orbits for Some Special Three Dimensional Systems	Rigar H. Salih
		Global Bifurcations and Chaos in Low-Dimensional Polynomial Dynamical Systems	Valery Gaiko
		Gröbner basis method in bifurcation analysis	Veronika Hajnová
		Slow passage through the resonant bifurcation from a robust heteroclinic cycle	Tsung-Lung Tsai, Hong-Fu Liu, Hui-Chuan Li
		Replay of spatio-temporal patterns and critical behaviour near a first-order transition in a model of spiking neurons	Antonio de Candia, Silvia Scarpetta
Room 3	9.00-10.30	**Chair: David Levin, Co-Chair: A. Yu. Shvets**	**Attractors**
		ATTRACTORS OF SEQUENCES OF FUNCTION SYSTEMS AND THEIR RELATION TO NON-STATIONARY SUBDIVISION	David Levin
		Is the occurrence of an attractor in a multi-scale Ndt computer based data analysis a good indicator of chaos data modelling?	Fairouz Bettayeb
		Pseudohyperbolic attractors and their examples in three-dimensional maps	Sergey Gonchenko
		The existence of a family of chaotic attractors in some non-ideal hydrodynamic systems	A.Yu. Shvets
		Complexity of the Snapshot Attractors considering Chaotic Dynamics	Agnes Fülöp
Room 4	9.00-10.30	**Chair: Jacky Cresson**	**Stochastic**
		Dynamics of stochastic Hamiltonian systems and Wild Arnold diffusion	Jacky Cresson
		Fractal dimension for a random attractor for a stochastic parabolic equation	M. Poulou, N. Zographopoulos
		Wavelet analysis of nonlinear dynamic microcirculatory regulatory processes in vivo - from stochasticity to determinism	Lubomir L. Traikov; Todor Bogdanov; Silvia M. Abarova; Radka Hadjiolova; Chiodji Ohkubo
		THE MULTI-DIMENSIONAL BOOLE TYPE MULTI-DIMENSIONAL TRANSFORMATIONS: THEIR ERGODIC AND MIXING PROPERTIES	Anatolij K. Prykarpatski
		A Pseudo Random Number Generator Based on Chaos and Irreducible Polynomial	Fatih Özkaynak
	10:30-11:00		**Coffee Break**

SCS5	Wednesday May 31	SPECIAL AND CONTRIBUTED SESSIONS SCS5	
Room 1	11.00-12.00	**Chair: Marek Lampart, Co-Chair: Paul A. Meehan**	**Oscillators II**
		Mode analysis of the 2-adic tree-like complex networks of nonlinear oscillators	Olga Katkova, Safin Ansar, Elena Surovyatkina, Mikhail Kapranov, Jurgen Kurths
		Dynamics of the multi-pendulum systems with side stops	Marek Lampart, Jaroslav Zapoměl
		Further investigation of chaotic instabilities in a mining dragline	Paul A. Meehan
Room 2	11.00-12.00	**Chair: Paulo Rocha**	**Quantum**
		Is Possible Quantum Correction for Newton's Law of Motion?	Timur F. Kamalov
		Geometry of Quantum Riemannian Hamiltonian Evolution	Gil Elgressy, Lawrence Horwitz
		Diabolical points, repulsion and chaos	Paulo Rocha
		Non-Locality of Quantum Correlations and Simulation of Superluminal Interaction	Timur F. Kamalov
Room 3	11.00-12.00	**Chair: D. Guegan, Co-Chair: K. P. Harikrishnan**	**Time Series**
		A Nonparametric Bootstrap to Test for Chaoticity in Time Series December 16, 2016	D. GUEGAN, Philippe DE PERETTI
		Detecting structural changes on time series	María Muñoz-Guillermo, G. García-Clemente, J. Cánovas
		Weighted Recurrence Networks from Chaotic Time Series	K. P. Harikrishnan, Rinku Jacob, R. Misra, G. Ambika
Room 4	11.00-12.00	**Chair: J. P. Sheerin , Co-Chair: David Garrison**	**Turbulence**
		Relativistic Magnetohydrodynamic Turbulence in the Early Universe	David Garrison
		Studies of Langmuir Caviton Turbulence by Ionospheric Experiments	J. P. Sheerin
		Transition to Two-dimensional and Three-Dimensional Turbulence under Action of Spherical Boundary Velocity Modulation	Dmitry Zhilenko, Olga Krivonosova

SCS6	Wednesday May 31	SPECIAL AND CONTRIBUTED SESSIONS SCS6	
Room 1	12.00-13.30	**Workshop Chairs: Tomáš Lučivjanský, Michal Hnatič, Juha Honkonen**	**Stochastic theory of turbulence and related phenomena: field-theoretic approach IV**
		Percolation process in the Presence of Velocity Fluctuations: Two-loop Approximation	Š. Birnšteinová, M. Hnatič, T. Lučivjanský, L. Mižišin
		Renormalization group analysis of the phase transition in the superfluid helium: Effect of compressibility	M. Dančo, M. Hnatič, T. Lučivjanský
		Turbulent advection of active scalar field near two dimensions	Mariia Kostenko
		Turbulent Prandtl number in the A model of passive vector admixture	E. Jurcisinova, M. Jurcisin, R. Remecky
Room 2	12.00-13.30	**Special Session Chair: Alexander A. Potapov**	**Quantum-Fractals-Radars**
		A New Quantum Mechanical Formalism Based on the Probability Representation of Quantum States	Jaykov Foukzon, Alexander A. Potapov, Elena R. Men'kova, Stanislav A. Podosenov
		Application of Chaos Theory, Fractals and Scaling in Logistic Processes, Flows and Management	Alexander A. Potapov, Alexey A. Potapov, Viktor A. Potapov
		Diffractals at Millimeter Waves and Waves Catastrophes in Fractal Randomly Inhomogeneous Media: Theory and Experiments	Alexander A. Potapov
		Nonlinear Fractal Condenser as a New Fractal Radio Element	Alexander A. Potapov, Viktor A. Potapov
		Postulates of Fractal Radar	Alexander A. Potapov
Room 3	12.00-13.30	**Chair: Alberto Tufaile**	**Optics-Solitons-Systems**
		Chaos, Bubble, Drops, and Foams	Alberto Tufaile, Adriana Pedrosa Biscaia Tufaile
		Hybrid Integrated Chaotic Laser in Butterfly Packaging Scale	Tong Zhao, YaNan Niu, YuHang Xu, AnBang Wang, MingJiang Zhang, YunCai Wang
		Non Linear Continuity of Optics to Meteorological Precipitators. Quantum parameters	Dimitrios Dellaportas, Anna Alexandratou
		Irreversibility and physics of evolution	V.M. Somsikov
Room 4	12.00-13.30	**Chair: Alica Miller, Co-Chair: Olga Krivonosova**	**Flows**
		Chaos and chaos-like properties in semiflows with the most general acting topological monoids	Alica Miller
		Chaos in the Flows, Driven by Torsional Oscillations of Boundaries	Dmitry Zhilenko, Olga Krivonosova
		DNS Study on Chaotic Behavior of the Late Flow Transition and Turbulence	Shuling Tian, Yong Yang, Chaoqun Liu
		Nonlinear Resonances in a two-layer shear flow interacting with two vortices in bottom layer	Eugene A. Ryzhov, Konstantin V. Koshel
		Transition to Cycle-chaos Intermittency Flow in rotating Spherical Layer	Dmitry Zhilenko, Olga Krivonosova
	13:30-14.30		**Lunch**
Excursion	14.30-19.00		**Half Day Excursion**

Thursday June 1

AULA MAGNA	9:00-9:30	**Invited Session (Chair: Yiannis Dimotikalis)** **Jaume Llibre1, Chara Pantazi2** 1Dept de Matemàtiques, Universitat Autònoma de Barcelona, Spain, 2Dept de Matemàtiques, Universitat Politècnica de Catalunya, Spain	Global Phase Portraits of Differential Quadratic Systems having a Singular Cubic Curve
AULA MAGNA	9:30-10:10	**Invited Session (Chair: Ferdinand Verhulst)** **Jean-Marc Ginoux1, Jaume Llibre2** 1LSIS, CNRS, UMR 7286, Université de Toulon, France, 2Dept de Matemàtiques, Universitat Autònoma de Barcelona, Spain	On the Takens-Argémi-Benoît's Transformation
AULA MAGNA	10:10-11:00	**Plenary Session (Chair: Ferdinand Verhulst)** **Jaume Llibre** Departament de Matematiques, Universitat Autonoma de Barcelona, Spain	On the Real Jacobian Conjecture
	11:00-11:30		**Coffee Break**
AULA MAGNA	11:30-12.00	**Invited Session (Chair: Gabriel V. Orman)** **George Savvidis** NRCPS Democritos, Greece	Spectrum and Entropy of Anosov-Kolmogorov C-K Systems. MIXMAX Random Number Generator
AULA MAGNA	12:00-12.30	**Invited Session (Chair: Florentino Borondo)** **Shunji Kawamoto** Osaka Prefecture University, Japan	The FitzHugh-Nagumo Model and 2-D Solvable Chaos Maps
AULA MAGNA	12:30-13:00	**Invited Session (Chair: Ralph Gregor Andrzejak)** **Wlodzimierz Klonowski** Nalecz Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences, Warsaw, Poland	Nonlinearity and Chaos in Decision Making
		CMSIM Committee Meeting	
	13:00-14.00		**Lunch**

SCS7	Thursday June 1	SPECIAL AND CONTRIBUTED SESSIONS SCS7	
Room 1	14.00-15.30	Chair: Merce Olle, Co-Chair: Zoya E. Eremenko	Wave-microwave fields
		Chaotic motion of the hydrogen atom in a circularly polarized microwave field	Merce Olle
		Wave chaos signature in a microwave cavity with a singular perturbation	El' M. Ganapolskii, Yurii V. Tarasov, Zoya E. Eremenko
		Wave manifestations of classical chaos in microwave spherical resonator with centred dielectric sphere	A. O. Boguslavska, Z. E. Eremenko
Room 2	14.00-15.30	Chair: Beatrice Venturi, Co-Chair: Bo-Wen Shen	Models and Modeling II
		On recurrent solutions in high-dimensional non-dissipative Lorenz models	Bo-Wen Shen, Sara Faghih-Naini
		CHAOTIC SOLUTIONS AND GLOBAL INDETERMINACY IN THE ROMER ENDOGENOUS GROWTH MODEL	Beatrice Venturi, Giovanni Bella, Paolo Mattana
		ANALYSIS OF A DISCRETE MODEL OF PREY-PREDATOR SYSTEM WITH PREY REFUGE	Prasenjit Das
		Chaos and a quantitative modeling of the kinetics of phase transitions on the final measure areas	Ivan G. Grabar, Olga I. Grabar, Yuri O. Kubrak, Mykola M. Marchuk
		Kleptoparasitism and complexity in a multi-trophic web	Massimo Materassi
Room 3	14.00-15.30	Chair: Nikolaos D. Katopodes	Mechanics
		Experimental investigation of the elastic enhancement factor in a transient region between regular and chaotic dynamics	Michal Lawniczak, Malgorzata Bialous, Vitalii Yunko, Szymon Bauch, Leszek Sirko
		Squeeze Film Dynamics of Grooved Rotating Disks	Pengchuan Wang, Nikolaos D. Katopodes
		A Novel Class of Highly Efficient &Accurate Time-Integrators in Nonlinear Computational Mechanics	Xuechuan Wang; Satya N Atluri
		Dynamics of extending marine risers in installation subjected to ocean current	Yikun Wang, Qiao Ni
		Bifurcation based mechanical diodes: Quasiperiodic solutions as energy transfer carriers	Jorge Galan-Vioque
Room 4	14.00-15.30	Chair: V J Law	Plasma - Lyapunov
		Anomalous diffusion by the fractional Fokker-Planck equation and Levy stable processes	Johan Anderson, Sara Moradi
		Electronic valve instabilities and modes jumps	V J Law, D P Dowling
		Detecting Lyapunov Exponents and Correlation Dimension with Chaotic Time Series Analyzing of 222Rn	Miraç KAMISLIOGLU
	15:30-16:00		Coffee Break

SCS8	Thursday June 1	SPECIAL AND CONTRIBUTED SESSIONS SCS8	
Room 1	16:00-17:30	**Chair: Carla M.A. Pinto, Co-Chair: Avadis S. Hacinliyan**	**Delay**
		A simple mathematical model for HIV infection with delayed immune response	A. Carvalho, C Pinto
		Chaos in a Delay Mathematical Model for AIDS-related cancer	Carla M.A. Pinto, Ana R.M. Carvalho
		On the Stability and Ultimate Boundedness of Solutions of Certain Third-Order Nonlinear Non-autonomous Delay Differential Equations	Akinwale L. Olutimo
		Reconstruction of the Network Connectivity and Node Parameters in Networks of Time-Delay Systems from Chaotic Time Series	Mikhail D. Prokhorov, Vladimir I. Ponomarenko, Danil D. Kulminskiy, Ilya V. Sysoev
		Chaos in the transient current through As2Te3 (In) and Mackey-Glass Simulation of Hysteresis Effect on glass substrates	Avadis S. Hacinliyan, Yani Skarlatos, A. Cihan Keles
Room 2	16:00-17:30	**Chair: Tatiana F. Filippova, Co-Chair: Dumitru N. Deleanu**	**Control**
		Dynamics and Estimates of Star-Shaped Reachable Sets of Nonlinear Control Systems	Tatiana F. Filippova
		Mobile robot with chaotic displacement and obstacle avoidance for surveillance and exploration tasks using a bounded control law	A. Y. Aguilar-Bustos, E. Bugarin
		On a Simple and Effective Scheme for Suppressing Chaos Based on Regular Proportional Feedback Control	Dumitru N. Deleanu
		Regional control and Synchronization of cellular automata	Franco Bagnoli, Samira El Yacoubi, Raul Rechtman, Sara Dridi
		Chaotification of an underactuated system	Zayneb BRARI, Safya Belghith
Room 3	16:00-17:30	**Chair: Karsten Keller, Co-Chair: Yiannis Dimotikalis**	**Entropy**
		Highway traffic speed data entropy	Ing. Tomáš Martinovic
		Variants of Permutation Entropy	Karsten Keller
		Entropy of Online Ratings Data: A Simulation Study	Yiannis Dimotikalis
		Transitive dendrite map with zero entropy	Jakub Byszewski, Fryderyk Falniowski, Dominik Kwietniak
Room 4	16:00-17:30	**Chair: Olga E. Dick, Co-Chair: Gabriel Crumpei**	**Physiology and Chaos**
		Model of the human cardiovascular system with autonomous regulation	Ponomarenko V.I., Karavaev A.S., Ishbulatov Yu.A., Prokhorov M.D., Kiselev A.R.
		Nonlinear Dynamics of Reactive EEG Patterns under Cerebrovascular and Cardiovascular Distortion	Olga E. Dick
		Cognitive perception of complex scenes in the process of eye tracking studies	Boguslaw Twarog, Zbigniew Gomolka, Ewa Zeslawska, Piotr Gomolka
		Emergent semantic logic to explain emergence in complex systems and particularly in brain	Gabriel Crumpei, Alina Gavriluţ
		Dynamical Characteristics of myocardial contractile function in patients with hypertension	Manana Janiashvili
		Spectral Analysis and Invariant Measure in the Study of a Nonlinear Dynamics of the Metabolic Process in a Krebs Cycle	Valeriy Grytsay
PS	17:30-18:00	**POSTER SESSION** (The list is at the end of the program)	**POSTER SESSION**
	21.00-23.30		**Farewell Dinner**

		Friday June 2	
SCS9	**Friday June 2**	**SPECIAL AND CONTRIBUTED SESSIONS SCS9**	
Room 1	9.00-10.30	**Chair: Asher Yahalom, Co-Chair: Vic Law**	**Chaotic Dynamics**
		Well posedness for the fractional KGS system modeling electron-ion plasma waves	M. Filippakis, M. Poulou
		Variational Principles and Applications of Local Topological Constants of Motion for Non-Barotropic Magnetohydrodynamics	Asher Yahalom
		Bifurcation structures of a cobweb model with memory and competing technologies	Nicolò Pecora, Anna Agliari, Ahmad Naimzada
Room 2	9.00-10.30	**Chair: Fausto Cavalli, Co-Chair: Christos H Skiadas**	**General Theory and Applications: Laser, Optical Filters, Random Numbers**
		A cobweb model for multiphase markets	F. Cavalli, A. Naimzada, L. Parisio
		Analysis of exchange rate variation in small economies of southern Caucasian countries	Evgeni Baratashvili, Tamar Matcharashvili
		Poverty traps and indeterminacy in macroeconomic models	Alessandro Pirisinu
		Some topics about chaotic behaviour in high frequency economic time-series	Julio E. Sandubete, Lorenzo Escot
		Multivariate analysis of variation of annual number of warmer and colder days derived from data sets of daily maximum air temperatures	Teimuraz Matcharashvili, Tamaz Chelidze, Zurab Tsveraidze
		The Chaotic Universe's Cosmogony: the Universe's Perpetuum Mobile, Multivariance of the Universe and the "Boiling" Universe Hypothesis	Alexander V. Sosnitsky
Room 3	9.00-10.30	**Chair: A. Hacinliyan**	**Chaotic Systems I**
		Identification of chaotic systems with application to heart rate variability	Pep Canyelles-Pericas, Paras Patel, Edward Bentley, Petia Sice and Krishna Busawon
		Left invertibility of chaotic systems	Amjed Mouelhi, Jean-Pierre Barbot, Mongi Besbes, A.Mami
		Modeling and research information properties of Rucklidge chaotic system using LabView	Volodymyr Rusyn
		Digital Currency Parity Rates Forecasting with Neural Networks	Gokhan Sahin, E. Eray Akkaya, A. Cihan Keles
		APPROXIMATELY CONSERVED QUANTITIES IN THE MATINYAN YANG MILLS HIGGS SYSTEM	A.Hacinliyan, E.Kandiran, B.Deruni
Room 4	9.00-10.30	**Chair: Ralph G. Andrzejak**	**Chaotic Systems II**
		Global Phase Dynamics in the Finite-Size Kuramoto Model	Franziska Peter, Arkady Pikovsky
		Network reconstruction via rank statistics measures	Marc G. Leguia, Petroula Laiou, Zoran Levnajic, and Ralph G. Andrzejak
		Control of chimera states in networks of phase oscillators	Giulia Ruzzene, Ralph G. Andrzejak
	10:30-11:00		**Coffee Break**

SCS10	Friday June 2	SPECIAL AND CONTRIBUTED SESSIONS SCS10	
Room 1	11:00-13:00	Chair: Rabih Sultan, Co-Chair: Mounira Kesmia	Chemical-Control
		Heat activated blur of surface of antiphase boundaries in BCC alloys	Aleksandra A. Chaplygina, Michail D. Starostenkov, Pavel A. Chaplygin
		Mechanism of Abnormalities and Curiosities in Rhythmic Precipitation	Huria Ibrahim, Dalia Ezzedine, Rabih Sultan
		Studies on Briggs Rauscher Reaction employing Mixed Organic Substrate Systems: An Experimental Approach	G. M. Peerzada, Nadeem Bashir, Showkat Ahmad Akhoon
		Statistical investigation and thermal properties for a 1-D impact system with dissipation	Gabriel Díaz I., André L.P. Livorati, Edson D. Leonel
		A perturbed nonlinear model of an articulated vehicle system with driver control	Zhaoheng Liu, Kwok-waiChung, Wei Wang
		Control of irregular cardiac rhythm	Mounira Kesmia, Soraya Boughaba, Sabir Jacquir
Room 2	11:00-13:00	Chair: Ali Nadaf	Maps-Lyapunov
		Robust Chaos in Two-Dimensional Discontinuous Maps with two switching manifolds	Ali Nadaf, Alexander R. Rutherford, Ralf W. Wittenberg
		Lyapunov Exponent Evaluation of the CBC Mode of Operation	Abdessalem Abidi, Christophe Guyeux, Jacques Demerjian, Belgacem Bouallègue, Mohsen Machhout
		Development of an Analogue to Digital Converter through a novel approach to estimate the parameter and the initial condition from the symbolic sequence generated by a Tent Map	Peter Mather, Rajlaxmi Basu, Dhrubajyoti Dutta, Violeta Holmes
Room 3	11:00-13:00	Chair: Philipe Beltrame	Nano-Systems, Neuron
		Influence of aspect ratio on roads to chaos in cavity containing nanofluid	Sabiha Aklouche-Benouaguef, Saad Adjal, Belkacem Zeghmati
		NANOCHAOS in raising a machine reliability and the creation of "eternal" STRUCTURES	Ivan G. Grabar
		Absolute Negative Mobility in Ratchets: Symmetry, Chaos and Noise	Philipe Beltrame
		A mathematical-physical model for the mirror neurons paradigm	Alina Gavrilut, Maricel Agop, Gabriel Crumpei
		Parameter Estimations for the Modified Izhikevich Neuron Model with Optimization Methods	Nimet KORKMAZ, Recai KILIÇ, Adem KALINLI, Ismail ÖZTÜRK
		A new Route for chaos in Tapping Mode Atomic Force Microscopy	Aliasghar Keyvani, Farbod Alijani, Hamed Sadeghian, Hans Goosen, Fred van Keulen
Room 4	11:00-13:00	Chair: Mykola Kushnir	Number Generator and Cryptography
		Research of the pseudo-chaotic number sequences in secure communication systems	Mykola Kushnir
		Applications of chaotic systems in steganography algorithms	Turker Tuncer
		Full Disclosure Attack on Ultralightweight Mutual Authentication Protocol: SASI	Rizwan Aamir, Umar Mujahid, Liaquat Ali Khan, M. Najam-ul-Islam
		Hyperchaos-Based Stream Cipher for Smartphone	Said Sadoudi, Samir Benzegane, Mustapha Djeddou
		New Chaos-based Stream Cipher for Real-time Multimedia Encryption using FPGA Platform	Mohamed Salah AZZAZ, Camel Tanougast
		Dual combination combination multi switching anti synchronization of chaotic systems	Ayub Khan, Dinesh Khattar, Nitish Prajapati
	13.00-13:30	Closing Ceremony	
	13:30-14.30		Lunch

Excursion	Saturday June 3 (9:00-18:00)	Full Day Excursion

PS	Poster Titles	Poster Authors
	Correct graph of Lyapunov exponent	Marek Berezowski
	Qualitative results for a mixture of Green-Lindsay thermoelastic solids	Antonio Magaña, Jaime Muñoz Rivera, Maria Grazia Naso, Ramón Quintanilla
	Scaling investigation for the chaotic dynamics for an ensemble of particles moving in a periodically time-dependent potential well	Flávio H. Graciano, Joelson D. V. Hermes, Edson D. Leonel
	Symmetry Breaking in the Formation of Two Clusters with the nonlinear Kuramoto mean field model	Chen Chris Gong, Arkady Pikovsky
	Intermittent theory: an investigation of scaling law in the logistic map	Joelson D. V. Hermes, Flávio H. Graciano, Edson D. Leonel
	Nonlinear Forecasting of Red Blood Cells Time Series Dynamics	Ana M. Korol
	Bifurcations of Hamiltonian Resonances	Reza Mazrooei-Sebdani
	Instability in Third-Harmonics Generation, S. Behnia, J. Ziaei, and M. Khodavirdizadeh	S. Behnia, J. Ziaei, M. Khodavirdizadeh
	Multi switching combination anti synchronization of chaotic systems	Ayub Khan
	Application of Extended OGY Control Method in a Multi-Chaotic Complex Biological System	Ensieh Nobakhti, Ali Khaki Sedigh
	Compact Finite Differences Method for Burger-Huxley Equation	Canan Akkoyunlu
	Looking for chaos in copper historical prices	A.Soltani Khaboushan, M.Osanloo, M.A.Shirazi
	Chaos in Demand Management Models	Pavel Zakharchenko, Tatyana Kungurtseva-Mashchenko