11th Chaotic Modeling and Simulation International Conference (CHAOS2018)

5-8 June, 2018, "Sapienza" University of Rome, Italy (Faculty of Economics, Via del Castro Laurenziano 9, Roma 00161)

Program

Session / Room	Date / Time	Authors / Talk Title / Event	Authors / Talk Title / Event
	7:45-8:45	**Tuesday June 5**	**Registration**
Auditorium	8:45-9:10	**Opening Ceremony**	
Auditorium	9:10-9:50	**Plenary Session (Chair: Christos H Skiadas)** **Giovanni Gallavotti** Universita` di Roma 1, Rome, Italy	**Friction and irreversibility in Navier-Stokes fluids: nonequilibrium ensembles**
Auditorium	9:50-10:30	**Plenary Session (Chair: Nikolaos D. Katopodes)** **Leszek Sirko** Physics, Polish Academy of Sciences, Poland _Institute of_	**Influence of Topology and Absorption on Properties of Quantum Graphs and Microwave Networks**
Auditorium	10:30-11:10	**Plenary Session (Chair: Raimondo Manca)** **Jean‑Marc Ginoux** Centro P.RI.ST.EM, Università Commerciale Luigi Bocconi, Italy	**The Paradox of Vito Volterra's Predator‑Prey Model**
	11:10-11:30		**Coffee Break**
Auditorium	11:30-12:10	**Plenary Session (Chair: Ihor Lubashevsky)** **Beatrice Venturi** Dept of Economics and Business, University of Cagliari, Italy	**ON THE STRUCTURE OF THE SOLUTIONS OF AN OPTIMAL GROWTH MODEL**
Auditorium	12:10-12:50	**Plenary Session (Chair: Leszek Sirko)** **Nikolaos D. Katopodes** University of Michigan, MI, USA	**Instability of Flow between Rotating Disks**
Auditorium	12:50-13:30	**Plenary Session (Chair: Beatrice Venturi)** **Ihor Lubashevsky** University of Aizu, Japan	Do we need a new physics to describe human behaviour? Phenomenological standpoint
Auditorium	13:30-14:10	**Plenary Session (Chair: Valeriy S. Abramov)** **Wieslaw M. Macek** **1Faculty of Mathematics and Natural Sciences, Cardinal Stefan Wyszyński University, 2Space Research Centre, Polish Academy of Sciences, Poland**	Complex Dynamics in the Generalized Lorenz System
	14:10-15:30		**Lunch**

SCS1	Tuesday June 5	SPECIAL AND CONTRIBUTED SESSIONS SCS1	
Room 1	15:30-17:00	Workshop Chairs: Michal Hnatič, Juha Honkonen, Tomáš Lučivjanský	Stochastic theory of turbulence and related phenomena: field-theoretic approach I
		Stochastic Navier-Stokes equation for a compressible fluid: two-loop approximation	N. M. Gulitskiy, M. Hnatič, T. Lučivjanský, L. Mižišin, V. Škultéty
		Large scale behavior of generalized stochastic magnetohydrodynamic turbulence with mirror symmetry breaking	M. Hnatič, T. Lučivjanský, L. Mižišin, P. Zalom
		Modeling turbulence via numerical functional integration	Ilja Honkonen, Juha Honkonen
		Percolation Process in the Presence of Velocity Fluctuations: Two-loop Approximation	Š. Birnšteinová, M.Hnatič, T. Lučivjanský, L. Mižišin
Room 2	15:30-17:00	Chair: Valeriy S. Abramov, Co-Chair: Boon Leong Lan	Dynamical Systems - Fractals
		Gravitational Waves, Relic Photons and Higgs Boson in a Fractal Models of the Universe	Valeriy S. Abramov
		A proposed test of special-relativistic mechanics at low speed	Boon Leong Lan
		Effect of Ordering of Displacement Fields Operators of Separate Quantum Dots, Elliptical Cylinders on the Deformation Field of the Coupled Fractal Structures	Olga P. Abramova, Andrii V. Abramov
		The many flavours of supergranulation	Paniveni Udayashankar
		The water dripping dynamics under a non-uniform electrical field	J. C. Sartorelli, T. N. Nogueira, F. A. P. Cardoso, J. Procópio
Room 3	15:30-17:00	Chair: Wei-Zhen Jane LU, Co-Chair: Philippe Beltrame	Flows and Engineering Applications
		CFD Simulations of Indoor Airflow in Module Room with the FCU Cooling system	Xiaofang SHAN, Wei-Zhen Jane LU
		Appropriate CFD Model and Impact Scale for Non-submerged Spur Dikes	Z.H. GU, X.M. CAO, and Jane Wei-Zhen LU
		Chaotic transport of interacting particles in a Stokes flow	Philippe Beltrame
		Ray and Wave Chaos in Randomly Inhomogeneous Acoustic Waveguides in the Ocean	Denis Makarov
	17:00-17:30	Coffee Break	

SCS2	Tuesday June 5	SPECIAL AND CONTRIBUTED SESSIONS SCS2	
Room 1	17:30-18:30	**Chair: Gabriel V. Orman, Co-Chair: Yiannis Dimotikalis**	**Stochastics - Correlation Dimension**
		On stochastic approximation techniques in the study of a class of systems	Gabriel V. Orman, Irinel Radomir, Sorina-Mihaela Stoian
		Stochastic properties of prime numbers distribution	V. A. Meshkoff
Room 2	17:30-18:30	**Chair: Fatih Özkaynak, Co-Chair: Miraç Kamışlıoğlu**	**Dynamical Systems - Fractals**
		Chaos Based Substitution Boxes as A Cryptographic Primitives: Challenges and Opportunities	Fatih Özkaynak
		Multiple correlation analysis for chaotic time series	Miraç Kamışlıoğlu
		Detrended Fluctuation Analysis for variations of radon in soil: Lesvos Island (Greece)	Miraç KAMIŞLIOĞLU, Feride KULALI
		The Effects on Performance of Using Chaotic Systems in Entropy Source of Deterministic Random Number Generators	Fatih Özkaynak
Room 3	17:30-18:30	**Chair: Ewa Gudowska-Nowak, Co-Chair: Vic Law**	**Flows and Engineering Applications**
		Embedding-dependent, full scale characterization of sample correlation integrals	Alessio Perinelli and Leonardo Ricci
		Lévy fluctuations and dynamic response-towards understanding processing of biological signals	Ewa Gudowska-Nowak
		Dynamical Systems & Psychology: Mind as Machine	Paula De Franco
	18.30-19.00		**Welcome Reception**

Wednesday June 6

SCS3	Wednesday June 6	SPECIAL AND CONTRIBUTED SESSIONS SCS3	
Room 1	9.00-10.30	**Chair: Wiesław M. Macek**	**Flows**
		Transient chaos in the Lorenz-type map with slow and periodic forcing	Oleg V. Maslennikov, Vladimir I. Nekorkin
		Butterfly Effects of the First and Second Kinds in Lorenz Models	Bo-Wen Shen
		Coexistence of Chaotic and Non-Chaotic Orbits in a New Nine-Dimensional Lorenz Model	Bo-Wen Shen, Tiffany Reyes and Sara Faghih-Naini
		Periodic Windows and Intermittency in the Generalized Lorenz Model	Anna Wawrzaszek, Agata Krasińska, Wiesław M. Macek
Room 2	9.00-10.30	**Workshop Chairs: Michal Hnatič, Juha Honkonen, Tomáš Lučivjanský**	**Stochastic theory of turbulence and related phenomena: field-theoretic approach II**
		Renormalization group approach to a passive scalar advection for turbulent compressible velocity field: Two-loop approximation	N. M. Gulitskiy, M. Hnatič, T. Lučivjanský, L. Mižišin, V. Škultéty
		Anomalous Brownian Motion in Macromolecules and Tissues	Vladimír Lisý, Jana Tóthová
		Influence of finite time correlations on the anomalous scaling of passive magnetic field	Martin Menkyna, Marián Jurišin, Eva Jurišinová
Room 3	9.00-10.30	**Chair: Yiannis Dimotikalis, Co-Chair: Keonhee Lee**	**Chaotic Systems - Dynamical systems**
		On a Cournot Dynamic Game with Differentiated Goods and Asymmetric Cost Functions	Georges Sarafopoulos, Kosmas Papadopoulos
		Stability of Flows with Expanding Measures	Keonhee Lee
		A new approach about how to make reliable predictions inside chaotic regions	Julio E. Sandubete, Lorenzo Escot
	10:30-11:00		**Coffee Break**

SCS4	Wednesday June 6	SPECIAL, CONTRIBUTED and Invited SESSIONS SCS4	
Room 1	11.00-12.00	Invited Talks Chair: Yic Law	Invited Talks on Chimera-like States and Chaos Universal Transformation Mechanisms
		Modelling the Brain: From Dynamical Complexity to Neural Synchronisation, Chimera-like States and Information Flow Capacity	Chris G. Antonopoulos
		Intelligence (Life) as a Universal Transformation Mechanism of Chaos into Harmony	Alexander V. Sosnitsky, Anatoly I. Shevchenko
Room 2	11.00-12.00	Invited Talks Chair: Michal Hnatič	Invited Talks on Statistical Properties of Chaotic Systems and Alternative Approach to Treatment of Separatrix Chaos
		Numerical Methods for Approximating Long-time Statistical Properties of Chaotic Systems	Xiaoming Wang
		Alternative Approach to Treatment of Separatrix Chaos: 10 Years of Development	Riccardo Mannella, Stanislav M. Soskin, Oleg M. Yevtushenko, Igor A. Khovanov, Peter V.E. McClintock
Room 3	11.00-12.00	Chair: Shunji Kawamoto	Cryptography
		Transition responses for the timeout in TCP/RED	Yuki Matsumoto, Hideyuki Kato, Takuji Kousaka, Daisuke Ito
		One of the Simplest Chaotic Generator: Modeling, Research and Control	Volodymyr Rusyn, Milan Guzan, Lenka Pribylova
		Memristor: modeling and research of information properties	Volodymyr Rusyn, Sviatoslav Hrapko
SCS5	Wednesday June 6	SPECIAL AND CONTRIBUTED SESSIONS SCS5	
Room 1	12.00-13.30	Workshop Chairs: Michal Hnatič, Juha Honkonen, Tomáš Lučivjanský	Stochastic theory of turbulence and related phenomena: field-theoretic approach III
		Phase Transition in Incompressible Active Fluid: Effect of Long-Range Interactions	Š. Birnšteinová, Juha Honkonen, Tomáš Lučivjanský, Viktor Skultety
		A scaling behavior in percolation: joint effect of anisotropy and compressibility	Hnatič M., Kalagov G., Lučivjanský T.
		Turbulent Prandtl number in two dimensions	Eva Jurcisinova, Marian Jurcisin, Richard Remecky
		Turbulent advection of passive vector field	Mariia Kostenko
Room 2	12.00-13.30	Special Session Chair: Alexander A. Potapov	Entropy-Fractals-Radars
		Some Points about Kulbak-Leibler Entropy Evolution in Stochastic Dynamic Systems	A.M. Agalarov, Alexander A. Potapov,, A.E. Rassadin, A.A. Tronov
		Fractality of the Russian Financial Market	A. Laktyunkin, Alexander A. Potapov
		Thematic Course: Statistical Theory of Fractal Radar	Alexander A. Potapov
		Topological or Fractal Detectors. Principles of Building, Circuitry Engineering and Its Application for Detecting Stealthy High-Altitude Pseudo-Satellite	Alexander A. Potapov,, V.A. German
		Triple Autocorrelation Function and Bispectra of Electrical Current for Rikitake System in Chaotic Mode	Alexander A. Potapov, I.V. Rakut , A.E. Rassadin, A.A. Tronov
Room 3	12.00-13.30	Chair: Alberto Tufaile, Co-Chair: Nada Jevtic	Optics-Solitons-Systems-Stability-Stochastic
		Non-linear stability observation using magneto-controlled diffraction with opto-fluidics	Adriana Pedrosa Biscaia Tufaile, Michael Snyder, Timm A. Vanderelli, Alberto Tufaile
		Rainbows, Billiards and Chaos	Alberto Tufaile, Adriana Pedrosa Biscaia Tufaile
		Nonlinear noise reduction on TESS simulated light curves	N. Jevtic, P. Stine
		Stability of a Nonlinear Viscoelastic Problem Governed by Lamé operator	MEFLAH Mabrouk
		Stochastic space-time: A new perspective on the "ether-drift"	M. Consoli
	13:30-14.30		Lunch
Excursion	14.30-19.30		Half Day Excursion

Thursday June 7

SCS6	Thursday June 7	SPECIAL AND CONTRIBUTED SESSIONS SCS6	
Room 1	9.00-10.30	Chair: Merce Olle, Co-Chair: Tatyana Krasnopolskaya	**Bifurcation - Oscillators**
		The hydrogen atom in a circularly polarized microwave field: hopf bifurcation and chaos	Merce Olle, Juan Ramon Pacha
		Recovery of Couplings and Parameters of Elements in Networks of Oscillators from Time Series	Vladimir I. Ponomarenko, Ilya V. Sysoev, Arkady S. Pikovsky, Mikhail D. Prokhorov
		Energy Characteristics of a Shaker-Oscillator Model	Tatyana Krasnopolskaya, Evgeniy Pechuk
		Reduced-order modeling of the "fluidic pinball"	Nan Deng, Luc R. Pastur, Marek Morzinsky, Bernd R. Noack
		Dynamics of the double-pendulum system with side stops forced by poly-harmonic excitation	Marek Lampart
Room 2	9.00-10.30	Chair: Dan G. Dimitriu	**Plasma**
		Transition to Chaos by Intermittency Related to the Nonlinear Dynamics of Non-Concentric Multiple Double Layers in Low-Temperature Plasma	Maricel Agop, Stefan A. Irimiciuc, Dan G. Dimitriu
		Self-Modulated Oscillations in the Dynamics of a Hollow Grid Cathode Discharge Plasma	Dan G. Dimitriu, Stefan A. Irimiciuc, Maricel Agop
		A Compact Non-Differential Approach for Modelling Laser Ablation Plasma Dynamics	Stefan A. Irimiciuc, Dan G. Dimitriu, Maricel Agop
		Appearance and Instability of Non-Concentric Multiple Double Layers in Low-Temperature Discharge Plasma	Stefan A. Irimiciuc, Dan G. Dimitriu, Maricel Agop
		Mechanical analogy for the wave of nuclear burning	V.V. Urbanevich, I.V. Sharph, V.A. Tarasov, V.D. Rusov
Room 3	9.00-10.30	Chair: A. E. Botha, Co-Chair: Victor J. Law	**Chimera States - Oscillators**
		Robustness of chimera order in spin systems	A. E. Botha, M. J. Caturla, W. Dednam
		Chimera states as drive-response systems	M. R. Kolahchi, A. E. Botha
		Magnetron Modes and Chimera States	Victor J. Law, Denis P. Dowling
		Chimera States in Networks of Globally Coupled Bistable Oscillators with Delayed Feedback	Mikhail D. Prokhorov, Danil D. Kulminskiy, Vladimir I. Ponomarenko
		Collision of chaotic attractors with repellers in a system of two phase oscillators with plastic couplings	Vladimir I. Nekorkin
	10:30-11:00		**Coffee Break**

SCS7	Thursday June 7	SPECIAL AND CONTRIBUTED SESSIONS SCS7	
Room 1	11.00-12.00	Chair: Magaña, Co-Chair: Ramón Quintanilla	**Engineering Applications - Spectral Statistics**
		On the time decay in phase-lag thermoelasticity with two temperatures	Antonio Magaña, Alain Miranville, Ramón Quintanilla
		On the exponential decay of solutions in dual-phase-lag porous thermoelasticity	José R. Fernández, Antonio Magaña, Ramón Quintanilla
		Spectral statistics for double-spherical cavity resonators through the mode decomposition method	Z. E. Eremenko, Yu.V. Tarasov, I.N. Volovichev
Room 2	11.00-12.00	Chair: Giovanni Gallavotti, Co-Chair: Jean-Marc GINOUX	**Chaos Theory**
		TORUS BREAKDOWN AND HOMOCLINIC CHAOS IN A GLOW DISCHARGE TUBE	Jean-Marc GINOUX, Riccardo MEUCCI, Stefano EUZZOR
		Equivalence (or Lack thereof) of Non-Equilibrium Ensembles in Multiscale Chaotic Systems	Luca Biferale, Massimo Cencini, Massimo De Pietro, Giovanni Gallavotti, Valerio Lucarini
		Stability and Chaos in Fractional (with Power-Law Memory) Systems	Mark Edelman
Room 3	11.00-12.00	Chair: Yiannis Dimotikalis, Co-Chair: Iuliana Oprea	**Attractors**
		Attractor for a Semi discrete fractional Klein Gordon Schrödinger system	M. E. Filippakis, M. N. Poulou
		Existence of Chaos and Attractors in the Iberian Margin	Berenice Rojo-Garibaldi, David Alberto Salas-de-León
		Spatiotemporal chaos and intermittency in nematic electroconvection	Iuliana Oprea, Gerhard Dangelmayr
SCS8	Thursday June 7	SPECIAL AND CONTRIBUTED SESSIONS SCS8	
Room 1	12.00-13.15	Chair: Dan G. Dimitriu, Co-Chair: David Ni	**Dynamical Systems - Bifurcation**
		Perpetual points in nonlinear dynamical systems	Dawid Dudkowski, Awadhesh Prasad, Tomasz Kapitaniak
		The role of the spontaneous breaking symmetry mechanism in the mental processes dynamics	Alina Gavrilut, Maricel Agop, Gabriel Crumpei
		Chaos in Quaternion Blaschke Maps	David Ni
		Bifurcation Theory of Dynamical Chaos	Nikolai A. Magnitskii
Room 2	12.00-13.15	Chair: Christos H Skiadas, Co-Chair: Maciej A. Nowak	**Extreme event estimation - Bifurcation**
		Extreme events versus extreme random matrices	Maciej A. Nowak
		Methodology on exploring the "Limits to Human Lifespan"	Christos H Skiadas, Charilaos Skiadas
		Bifurcations of one-dimensional one-parametric maps revisited	Lenka Pribylova
		Limit Cycle Bifurcations and Chaos Transition in Polynomial Dynamical Systems	Valery Gaiko
Room 3	12.00-13.15	Chair: Siavash H. Sohrab	**Chaotic Systems**
		Chaotic model in the Hilbert spaces	Pokutnyi O.O.
		A fractional nonlinear Schrödinger-Poisson system	Marilena N. Poulou
		Generation of a Hamiltonian conservative chaotic system with strong pseudo-randomness	Guoyuan Qi, Jianbing Hu, Yuhua Wang
		An example of chaotic dynamics in magnetic field	Oltiana Gjata and Fabio Zanolin
	13:00-14.00		**Lunch**

SCS9	Thursday June 7	SPECIAL AND CONTRIBUTED SESSIONS SCS9	
Room 1	14.00-15.50	Chair: Aleksandr Shvets, Co-Chair: Liubov A. Klimina	Oscillations - Pendulum - Engineering
		An iterative averaging approach for describing self-sustained oscillations and rotations of an aerodynamic pendulum	Liubov A. Klimina, Boris Ya. Lokshin
		Magnus type propeller wind turbine as an engine for a wind car	Liubov A. Klimina, Margarita V. Ishkhanyan, Olga G. Privalova, Yury D. Selyutskiy
		Transition to Deterministic Chaos in Some Electroelastic Systems	Aleksandr Shvets, Serhii Donetskyi
		Quasi–periodic operation modes of a counter-rotating Darrieus wind turbine	Liubov A. Klimina, Ekaterina S. Shalimova, Vitaly A. Samsonov
		Hyperchaos in Oscillating Systems with Limited Excitation	Aleksandr Shvets, Vasiliy Sirenko
		Bifurcation Analysis of Dynamical Complexity of Signals During Antinociceptive Effect Emergence	Olga E. Dick
Room 2	14.00-15.30	Chair: Acilina Caneco, Co-Chair: Vic Law	Synchronization - Oscillations
		The positive influence of Allee effect on synchronization of von Bertalanffy' models	Sandra M. Aleixo, Acilina Caneco
		Synchronization of 0.1-Hz Rhythms in the Signals of Laser Doppler Flowmetry, Photoplethysmogram and Cardiointervalogram	Danil D. Kulminskiy, Mikhail D. Prokhorov, Anatoly S. Karavaev, Vladimir I. Ponomarenko
		Synchronization Patterns and Chimera States in Dynamical Networks with Adaptive Couplings	Dmitry Kasatkin
		Complex oscilations in a thermosyphon viscoelastic model	Ángela Jiménez-Casas
Room 3	14.00-15.30	Chair: Shunji Kawamoto, Co-Chair: Siavash H. Sohrab	Fractal - Geometry - Graphs
		The FitzHugh-Nagumo Model and Spatiotemporal Fractal Sets Based on Chaos Functions	Shunji Kawamoto
		Platonic Solids and Fractals	Dominic Rochon
		Solution of the Ancient Greek Problem of Trisection of Arbitrary Angle	Siavash H. Sohrab
		The Delaunay Triangulation Learner	Yehong Liu, Guosheng Yin
		A Nonlinear Behavior of Robert Disc Dynamo with Fractal property	Muhammad Aqeel
PS	15:30-16:00	POSTER SESSION (The list is at the end of the program)	POSTER SESSION
	15:30-16:00		Coffee Break

SCS10	Thursday June 7	SPECIAL AND CONTRIBUTED SESSIONS SCS10	
Room 1	16:00-17:30	Chair: Asher Yahalom, Co-Chair: Alica Miller	CHAOS Defined and Explored
		Uncertainty Relation for Chaos	Asher Yahalom
		The 0-1 test for chaos and RQA analysis applied on the CML dynamical system of Laplacian type	Ing. Tomáš Martinovic
		Chaotic semiflows with general acting topological monoids	Alica Miller
		Topology and persistent homology of recurrent dynamics of nonlinear dynamical systems	Milan Rajkovic, Miroslav Andjelkovic
Room 2	16:00-17:30	Chair: Arkady Kitover, Co-Chair: Veronika Hajnová	Chaotic Systems
		A multi-arc approach for chaotic orbit determination problems	Serra, Daniele, Spoto, Federica, Milani, Andrea
		Generalizations of weighted rotation operators and their spectra	Arkady Kitover
		Gröbner basis method in the FitzHugh-Nagumo model	Veronika Hajnová
		Generation, analysis and FPGA implementation of multi-wing chaotic system with complex topological structure	Enzeng Dong, Mingfeng Yuan
		Emergence of the Devil's Staircase in the Forced BVP Oscillator with a Diode	Hiroaki Takahashi, Hiroyuki Asahara, Takuji Kousaka, Naohiko Inaba
Room 3	16:00-17:30	Chair: Vladimir L. Kalashnikov	Non-Linear Dynamics
		The asymptotic coupling method in the study of ergodicity of equicontinuous Markov operators	Dawid Czapla
		Nonlinear Dissipative Soliton Dynamics	Vladimir L. Kalashnikov
		Solvable probabilistic cellular automaton on Bethe lattice with smooth transition between exponential and inverse-power distribution of avalanches	Arpan Bagchi, Mariusz Bialecki
		Useful Criteria Verifying Limit Theorems for Certain Markov Chains	Hanna Wojewódka, D. Czapla, K. Horbacz
		Chaos Beyond Observability	Viktor Avrutin, Zhanybai T. Zhusubaliyev, Abdelali El Aroudi
Room 1	17:30-18:00	Members Meeting	
	19.30-23.00	Bus depart at 19:00 from the Conference Venue	Farewell Dinner

		Friday June 8	
SCS11	Friday June 8	SPECIAL AND CONTRIBUTED SESSIONS SCS11	
Room 1	9.00-10.50	Chair: Avadis Hacinliyan	Equations - Flows - Engineering
		Dynamical Invariant Calculations Involving Evolution Equations with Discontinuities	Avadis Hacinliyan, Engin Kandıran
		On the Stability and Ultimate Boundedness of Solutions of Certain Third-Order Nonlinear Non-autonomous Delay Differential Equations	Akinwale Olutimo
		Interaction of a propagating vortex with a vortex entrapped in a bay	Eugene A. Ryzhov, Konstantin V. Koshel
		Effect of inclination and number of Prandtl on chaotic roads in different cavities	Sabiha Aklouche-Benouaguef, Saad Adjal, Belkacem Zeghmati
		Method of Synergistic Synthesis of Control Laws of Separation of two Flight Vehicle	Olga Kreerenko, Evgeny Kreerenko
		Spatial Extent of An Attractor	A.S. Hacinliyan, E.Kandıran
		Lie Transform Normalization of Hamiltonian System with Quartic	B. Deruni, A. Hacınlıyan
Room 2	9.00-10.50	Chair: Dimitrios Sotiropoulos	Cryptography
		A Secure OFDM Transmission coding Scheme Based on 3-Dimensional Chaos Shift Keying OQPSK Modulation	Asgar Azari, Aziz Morovati
		Two Categories n-Dimensional Discrete Chaotic Systems with Applications in Image Encryption	Ruibin Hao, Hongyan Zang, Kexin Yang
		Generalization of inversive congruential generator with a variable shift	Tran Kim Thanh, Tran The Vinh, Varbanets Sergey
		Color Image Encryption based on Reality Preserving Fractional Hartley Transform and Chaos	Gurpreet Kaur, Vinod Patidar, Rekha Agarwal
	10:50-11:10		Coffee Break

SCS12	Friday June 8	SPECIAL AND CONTRIBUTED SESSIONS SCS12	
Room 1	11:10-12:40	Chair: Yiannis Dimotikalis, Co-Chair: Alexander Valyaev	Data Analysis
		Chaotic Analysis of Acid Rains with Time Series of pH Degree, Nitrate and Sulphate Concentration on Wet Samples	Aysegul Sener and Gonca Tuncel Memis
		Complex Networks Tools for the Analysis of Diagnostic Time Series in Nuclear Fusion	T. Craciunescu, A. Murari,, E. Peluso, M. Gelfusa and JET Contributors
		Chaos investment in engineering and robotics applications	Salah Nasr, Kais Bouallegue, Hassen Mekki
		Analysis of emergency situations on hydraulic structures in Central Asia and the Caucasus	Alexander Valyaev, Petr Belov, Gurgen Aleksanyan, Alexey Valyaev
		Determination of Support Reaction Force of Junction between Launch Aircraft and top Mounting Upper-Stage Rocket	Evgeny Kreerenko, Olga Kreerenko
Room 2	11:10-12:40	Chair: Dimitrios Sotiropoulos, Co-Chair: Avadis S. Hacinliyan	Chaotic Systems, Applications and Control. Special talks on Speech, Music and Chaos
		On the acoustic characteristics of sounds in child speech	Dimitrios Sotiropoulos
		Procedural symbolic musical rhythm patterns generation through sequential dynamical systems	Edmar Soria
		Sliding Mode Control with Fuzzy Boundary Layer For Chaotic Dynamical System	Mustafa Resa Becan
		Stabilization of Autoresonant Modes	Oskar Sultanov
		Non-linear dynamics in biological systems	Andjelka N. Hedrih
		Dynamical features of acoustic emission of natural and forced stick-slip process	Teimuraz Matcharashvili,, Tamaz Chelidze, Natalia Zhukova, Ekaterine Mepharidze, Aleksandre Sborshchikovi, Dimitri Tephnadze, Zurab Chelidze, Zurab Tsveraidze, Levan Laliashvili

SCS13	Friday June 8	SPECIAL AND CONTRIBUTED SESSIONS SCS13	
Room 1	12:45-14:10	**Chair: Vic Law, Co-Chair: Wojciech Szumiński**	**Economy - Ecology**
		Binary Interaction Models for Random Markets	Ricardo López-Ruiz
		Stochastic Elasticity of Variance and Drivatives Pricing	Jeong-Hoon Kim, Jeongwoo Lee, Veng Sotherara, Ji-Hun Yoon
		Integrability analysis of chaotic and hyper-chaotic financial models	Wojciech Szumiński
		Modeling of Turbulent Processes in Economy of Macrosystems	Natalia Kirkova, Anna Kostenko
		Modeling Behavior of Economic Systems on the Edge of Chaos	Pavel Zakharchenko, Tatyana Kungurtseva-Mashchenko
		Discontinuity of light scattering according to the size of the droplets and the suspended particles of the atmosphere. The transferred energy packs	Dimitrios Dellaportas, Anna Alexandratou
		Tests for determining the allowable limit of lead toxicity; IN-VITRO investigations on the phaseolus-vulgaris plant	Sahraoui Nabil
Room 2	12:45-14:10	**Chair: Yiannis Dimotikalis, Co-Chair: Boris P. Bezruchko**	**Entropy - Wavelet Analysis - Energy - Data Analysis**
		Simulation of Rating Data Distribution Using Entropy Analytics	Yiannis Dimotikalis
		Detecting causal relations from real the data experiments has posed great challenges in data-driven inference methods	Macau, E. E. N., Ramos, A. M. T., Kurths, J., Marwan, N.
		Approximation of Slow and Fast Dynamics in Chaotic Electrochemistry Oscillators using Biorthogonal Wavelets	Magrini, L. A., Macau, E. E. N., Domingues, M. O., Kiss, I. Z.
		Hemispherical non-coherent electrical activity as a an early sign of focal-subcortical lesions at neurodegenerative diseases- Wavelet analysis of ECoG spectrum of rats brain	Lubomir Traikov, Michaela Gradinarova, Dimityr Bakalov, Anastasios Papageorgiu, Radka Hadjiolova, Todor Bogdanov, Julia Petrova, Lytzezar Traykov
		Dynamical models reconstructed from time series in application to revealing structure of oscillatory ensemble	Boris P. Bezruchko, Elena V. Sidak, Dmitry A. Smirnov
		Potential energy analysis of homologue chromosome pairs trough mechanical oscillatory model of mitotic spindle	Andjelka N. Hedrih, Katica (Stevanović) Hedrih
		On chaotic behaviour of an orbiting slender body with controllable mass distribution	Vasily Nikonov, Alexander A. Burov, Anna D. Guerman, Ivan I. Kosenko, Ekaterina A. Raspopova

	14:10-14.30	**Closing Ceremony**	
	14:30-15.30		**Lunch**
Excursion		**Saturday June 9 (8:00-20:00)**	**Full Day Excursion in Pompeii**

PS	Poster Titles	Poster Authors
	Route to chaos in a double microresonator with gain and loss	Krzysztof B. Zegadlo
	Many-Body quantum chaos in strong nuclear force analysis	S.Behnia, V. Razazi
	A Quantum Chaos Approach for Localization in Disordered Single-Walled Carbon Nanotube	Sohrab Behnia, Fatemeh Rahimi
	Anisotropy induced current reversal in two dimensional driven lattices	Aritra K. Mukhopadhyay
	EXPAR model to model chaos and cyclical time-series data	Bishal Gurung, K.N. Singh
	A new robust chaotic map-based RFID authentication scheme	Mustapha Benssalah, Mustapha Djeddou, Karim Drouiche
	Simulation of Streeter-Phelps Model with Missing and Extreme Reading of Biochemical Oxygen Demand	WALEED ABDULLAH ARAHEEMAH AL-ELAYAWI, NAZAR MUSTAFA JAWAD AL-SARRAF, DHAHIR ABBAS RIDHA
	Perturbation effect of aliphatic alcohols on the dynamical regime of a Briggs-Rauscher reaction	Nadeem Bashir, Ghulam Mustafa Peerzada, Nisar Ahmad Dar
	Digital signature: Quantum chaos approach and bell states	Nafiseh Hematpour, Sodeif Ahadpour, Sohrab Behnia
	Structural-phase weakly stable states of CuZn and NiAl alloys with antiphase boundaries complexes	Aleksandra A. Chaplygina, Michail D. Starostenkov, Pavel A. Chaplygin
	Transport Properties of a DNA Transistor in the Presence of a Thermal Bath	Sohrab Behnia, Samira Fathizadeh, and Javid Ziaei
	Study of the Dynamic of FMO Complex with the Chaos theory and the Temperature Effect on the Conductivity of Exciton	S. Behnia, P. Hosseinnezhad, S. Fathizadeh
	Seismic amplifications in near-shore induced by seaquakes using the boundary element method	Alejandro Rodríguez-Castellanos, Andriy Kryvko, Manuel Carbajal-Romero, Norberto Flores-Guzmán, J. Efraín Rodríguez-Sánchez
	Excitation of discrete breathers in ac driven one-dimensional chains with hard and soft type anharmonic on-site potentials	D. Saadatmand, Daxing Xiong, V. A. Kuzkin, A. M. Krivtsov, A. V. Savin, S. V. Dmitriev
	A Novel Finding of Hidden Bifurcation in the Multiscroll Chen Attractors in 3 Dimentional	Malika Belouerghi , Tidjani Menacer , René Lozi