



Program CHAOS 2020

13th Chaotic Modeling and Simulation International Conference

Turned into Virtual

Tuesday, 9.6.2020

TIME ZONE: CEST – Central European Summer

11:00- 11:30 Preparation, interconnections

11:30 - 12:00

[Room 1](#)

Opening Ceremony

12:00-12:40

Plenary Session

[Room 1](#) (PS1)

Chair: Christos H Skiadas

Speaker: Ferdinand Verhulst

Title: Variations on the Fermi-Pasta-Ulam chain, a survey

12:40-13:20

Plenary Session

[Room 1](#) (PS2)

Chair: Roland Schiek

Speaker: Nail Akhmediev

Title: Recent advances in rogue wave theory

13:20- 13:30 Preparation, interconnections

13:30-14.45

SCS1

Special and Contributed Sessions

[Room 1](#)

[Room 2](#)

[Room 3](#)

Attractors

Special Session
Liutex and Third Generation
of Vortex Identification I
Chair: Yifei Yu

Dynamics I

Bernd Binder
Point Cloud Wave Attractor
from Discrete Rotation-
Translation Sequences on Closed
Loops

Chaoqun Liu
Liutex and Third Generation of
Vortex Definition and
Identification

**Maricel Agop, Andrei Zală, Dan
Dimitriu, Ștefan Irimiciuc, Alina
Gavriluț, Gabriel Crumpei, Lucian
Eva**
Statistical methods and nonlinear
dynamics for analyzing brain
activity. Theoretical and
experimental aspects

<p>Zaamoune Faiza, Tijdani Menacer Design Hidden Bifurcation kind to Multiscroll Chaotic Attractors via Saturated Function Series</p>	<p>Cheng Liu, Yiding Hu, Decheng Wan Simulation and Analysis of Breaking Waves in Deep Water</p>	<p>Jorge Carballido-Landeira Exploring the spatiotemporal dynamics in active nanocompartment systems</p>
<p>Vadim Prokopenko Construction of composite chaotic multiattractors containing local chaotic attractors with different spatial orientations</p>	<p>Dongming Huang, Weihao Zhang Numerical Simulation of Leakage Flow inside Shroud and Its Interaction with Main Flow in an Axial Turbine</p>	<p>Aliyu Isah, Jean-Marie Bilbault, Serge-Aurélien Tchakoutio Nguetcho, Stéphane Binczak Dynamics of the charge transfer through a memristor between two initially charged cells</p>
<p>Jakub Vohryzek, Gustavo Deco, Bruno Cessac, Morten L. Kringlebach and Joana Cabral Ghost attractors in spontaneous brain activity: recurrent excursions into functionally-relevant BOLD phase-locking states</p>	<p>Sita Charkrit, Chaoqun Liu Dynamic Mode Decomposition of Liutex to Identify Vortices in Early Flow Transition</p>	<p>Eva Jurcisinova, Marian Jurcisin, Richard Remecky Anomalous scaling in the kinematic magnetohydrodynamic turbulence under the influence of helicity in the two-loop approximation</p>
		<p>Zheng lu, Linyao Li, Dong Liang, Mengmeng Du, Ying Wu Energy Efficiency of Cortical Action Potential Generation at Different Temperatures</p>
14:45-15:00 Break		
15:00- 15:15 Preparation, interconnections		
15:15-16:45 SCS2 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
<p>Special Session Extreme nonlinear waves (rogue waves) I Chair: Nail Akhmediev</p>	<p>Special Session Liutex and Third Generation of Vortex Identification II Chair: Yiqian Wang</p>	<p>Dynamics II</p>
<p>Roland Schiek On the experimental excitation of modulation instability and Akhmediev breathers</p>	<p>Hongyi Xu Hairpin Vortex Formation Mechanisms based on LXC-Liutex Cores in Thermal Turbulent Boundary Layer with Rib-tabulator</p>	<p>Andreas Sofianos, Constantinos Siettos, Lucia Russo Analytical and Numerical Bifurcation Analysis of TLR4 Receptor Signaling Chaotic Dynamics</p>
<p>Chong Liu, Nail Akhmediev Breather interaction: Chessboard-like interference patterns and modulation instability</p>	<p>Yisheng Gao Sensitivity analysis of volume integral of Liutex in transitional flows</p>	<p>Edmar Soria Space-Timbre: a dynamical systems representation of foundational parameters in Electroacoustic Music</p>

<p>Fetah Benabid Inhibited-Coupling guiding hollow core PCF: A platform for pulse compression.</p>	<p>Yifei Yu, Pushpa Shrestha, Oscar Alvarez, Chaoqun Liu Correlation Analysis between vorticity and Liutex (vortex)</p>	<p>J. Leonel Rocha, S. Carvalho Information measures and synchronization in regular ring lattices with discontinuous dynamics</p>
<p>Ioannis Kourakis, Ibrahim Elkamash and Brian Reville Electrostatic Rogue Waves in Plasmas</p>	<p>Xiaorui Bai, Huaiyu Cheng, Bin Ji, Xinpeng Long On the comparison of Liutex method with other vortex identification methods in a confined tip-leakage cavitating flow</p>	<p>Hovik Matevossian, Giorgio Nordo, Giovanni Migliaccio Biharmonic Problems and their Applications in Engineering and Technology</p>
<p>Margarida Facao, M. Inês Carvalho Extreme solutions of the cubic complex Ginzburg-Landau equation with nonlinear gradient terms</p>		<p>Hovik Matevossian, Giovanni Migliaccio On the Exterior Biharmonic Problem with the Steklov and Steklov-type Boundary Conditions</p>
16:45- 17:00 Preparation, interconnections		
17:00-18:30 SCS3 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
<p>Special Session Extreme nonlinear waves (rogue waves) II Chair: Nail Akhmediev</p>	<p>Special Session Liutex and Third Generation of Vortex Identification III Chair: Xiaoshu Cai</p>	<p>Chaos and Control</p>
<p>Raphael Jauberteau, Alessandro Tonello, Katarzyna Krupa, Fabio Baronio, Guy Millot, Stefan Wabnitz, Vincent Couderc Appearance and Disappearance of 2-D Spatiotemporal Extreme Waves in Quadratic Nonlinear Medium</p>	<p>Yiqian Wang Largragian Liutex</p>	<p>Malika Belouerghi, Tidjani Menacer Control of a Modified Chua's System using the Routh-Hurwitz Criteria</p>
<p>Katarzyna Krupa, Alessandro Tonello, E. Deliancourt, A.Barthélémy, Guy Millot, Stefan Wabnitz, Vincent Couderc Spatiotemporal nonlinear phenomena in multimode optical fibers</p>	<p>Yuxian Xia Liutex in the vortex statistics of 2D turbulent system</p>	<p>R.J. Escalante-González, Eric Campos A class of complex systems without equilibria with parametric control</p>
<p>Orazio Descalzi Helmut R. Brand Dissipative Solitons stabilized by nonlinear gradients</p>	<p>Xiangrui Dong Micro-Ramp Wake Structures Identified by Liutex</p>	<p>Tatiana F. Filippova Control for Set-valued Movements of Dynamical Systems under Uncertainty with Applications</p>
<p>Zhenyun Qin Rogue Waves in Nonlinear Integrable Systems</p>	<p>Jiawei He, Songtao Chen, Weiwen Zhao, Decheng Wan</p>	<p>Mounira Kesmia, Soraya Boughaba Control of Cardiac Alternans</p>

	Investigation of Flow Structures around Cylinders with High Reynolds Number by Liutex Vortex Identification Methods	
Ioannis Kourakis, Ibrahim Elkamash, Michael McKerr, Theodoros Horikis and Dimitri J Frantzeskakis Coupled State Formation in Plasma Waves		Maiya A. Rozhnova, Victor B. Kazantsev, Evgeniya V. Pankratova Role of the neuronal firing rate in emergence of chaotic brain extracellular matrix dynamics
18:30- 18:45 Preparation, interconnections		
18:45-19:30 Room 1 (PS3) Plenary Session Chair: Christos H Skiadas Speaker: Jean-Marc Ginoux Title: Albert Einstein and the doubling of the deflection of light		
End of the 1st Day		



Program - CHAOS 2020

13th Chaotic Modeling and Simulation International Conference

9 - 12 June 2020, Florence, Italy

Turned into Virtual

Wednesday, 10.6.2020

TIME ZONE: CEST – Central European Summer

11:30- 12:00 Preparation, interconnections

12:00-13:30

SCS4

Special and Contributed Sessions

<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
<p>Special Session Nonlinear Localization in Lattices I Chair: Juan F.R. Archilla</p>	<p>Special Session Liutex and Third Generation of Vortex Identification IV Chair: Yisheng Gao</p>	<p>Maps</p>
<p>Sergej Flach The Wonderful World of Flatbands: From Basics of Compact Localized States to Caging of Classical and Quantum Interactions</p>	<p>Xiaoshu Cai, Xiangrui Dong and Wu Zhou Experimental Study on vortex structures in turbulent boundary layer by Liutex identification</p>	<p>Shunji Kawamoto Limit Cycle Analysis for 2-D Time-Dependent Logistic Maps</p>
<p>Yosuke Watanabe Observation of propagation of nonlinear localized oscillations in a mass-spring chain with excitation and attenuation ends</p>	<p>Pengxin Cheng, Nan Gui, Xingtuan Yang, Jiyuan Tu, Shengyao Jiang A comparison of Liutex with other vortex identification methods on the multiphase flow past a cylinder using LBM on GPU</p>	<p>Domenico Lippolis, Kensuke Yoshida Eigenfunctions of the Perron- Frobenius operator for uniformly hyperbolic area- preserving maps</p>
<p>Yusuke Doi, Reiichiro Wada, Akihiro Nakatani Dynamics of Discrete Breathers in Normal Modes in a Symmetric Lattice</p>	<p>Xuan Trieu, Chaoqun Liu Liutex and Proper Orthogonal Decomposition for Vortex Structure in the Wake of Micro Vortex Generator</p>	<p>André M. McDonald, Michaël A. van Wyk Estimation of Ergodic Maps with Unified Power Spectra from Causal Sequences of State Density Functions</p>
<p>Masayuki Kimura, Yamato Mogi, Shinji Doi Localized modes induced by distributed impurities in resonant circuit arrays</p>	<p>Pushpa Shrestha, Chaoqun Liu Comparison between Q, Δ, λ_2, λ_{ci} and Liutex Criteria</p>	<p>Belqassim Bouteghrine, Camel Tanouagast, Said Sadoudi Application of New 4-D Chaotic Map for Secure IP- Communication</p>
<p>Masayuki Sato, Masato Sakai, A. J. Sievers</p>		<p>María Muñoz-Guillermo On the complexity of the q- deformed logistic map</p>

Management of intrinsic localized modes in a driven nonlinear cyclic electrical transmission line		
Yuriy A. Kosevich, Alexander P. Chetverikov, Yusuke Doi Localization of negative-effective-mass electron by supersonic kink in 1D lattice		
13:30- 13:45 Preparation, interconnections		
13:45-14:30 Room 1 (PS4) Plenary Session Chair: Christos H Skiadas Speaker: Nikolay V. Kuznetsov Title: Theory of hidden oscillations (Dedicated to Gennady Alekseevich Leonov (1947-2018))		
14:30- 15:00 Break		
15:00- 15:15 Preparation, interconnections		
15:15-16:00 SCS5 Special and Contributed Sessions		
Room 1	Room 2	Room 3
Theory	Special Session Liutex and Third Generation of Vortex Identification V Chair: Hongyi Xu	Generator
Vyacheslav M. Somsikov The evolution and breaking symmetry in the physics	Kan Xie, Jiahui Song Numerical Study on influence of vortex structure of jet in crossflow in axisymmetric transonic nozzle	Volodymyr Rusyn Pulse chaotic Chua's generator
Vyacheslav Somsikov, Svetlana Azarenko Problems of creating an evolutionary picture of the world	Xiangyang Xu, Wennan Zou No vortex in flows with straight streamlines – Some comments on real Schur forms of velocity gradient ∇v	S. Varbanets, Ya. Vorobyov Inversive generators of second order
Alexander V. Sosnitsky, Anatoly I. Shevchenko The Universe multiphase meta-reduction: The Harmon (Mandala), continuum (Prana), discretization, formalization, knowledge, cognition, condensation and Absolute Nothing	Yang Huang, Decheng Wan Application of Liutex for Analysis of Complex Wake Flow Characteristics of Wind Turbine	Zongchao Qiao, Ina Taralova, Mazen Saad, Safwan El Assad Chaotic generator design for encryption purposes
	Zhen Ren, Weiwen Zhao, Decheng Wan Visualization of Complex Flow Field of Ship Self-Propulsion and Zigzag Manoeuvrability	Margarida Facao, M. Inês Carvalho Extreme solutions of the cubic complex Ginzburg-Landau equation with nonlinear gradient terms

16:00- 16:15 Preparation, interconnections		
16:15-17:45 SCS6 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
Special Session Nonlinear Localization in Lattices II Chair: Juan F.R. Archilla	Special Session Liutex and Third Generation of Vortex Identification VI Chair: Wennan Zou	Plasma
Aleksandr Shelkan, Mihail Klopov, Vladimir Hizhnyakov Increased mobility of discrete breather in lattices with odd inter- site and on-site anharmonic potentials	Charles Nottage Visualization of The Batchelor Vortex with Liutex and Liutex Core Line Methods	Dan G. Dimitriu, Sebastian Popescu, Maricel Agop Double Layer in Plasma as an Interface Generated through the Interaction of Two Fractal Fluids
Irina Koroleva (Kikot), Nina Breitman (Rayzan), Margarita Kovaleva, Yuli Starosvetsky Analysis of discrete breathers in the mass-in-mass chain in the state of acoustic vacuum	Vishwa Patel, Yonghua Yan, Xiangrui Dong, Chaoqun Liu Correlation Analysis between low frequency shock oscillation and Liutex in SBLI	Dan G. Dimitriu, Sebastian Popescu, Maricel Agop Chaotic states of Plasma Triggered by the Nonlinear Dynamics of Simple and Multiple Double Layers
Juan F.R. Archilla, F. Michael Russell, Santiago Medina-Carrasco Localized waves in silicates. What we know from experiments?	Xiaoping Chen, Renfei Kuang, and Shaorong Wang Application Modified Liutex- Omega method to High- Temperature Supersonic Turbulent Channel Flows	V J Law, D P Dowling Application of microwave oven plasma reactors for the formation of carbon-based nanomaterials
Sergey V. Dmitriev, Igor A. Shepelev, Elena A. Korznikova Supersonic crowdions and voidions	Xiang Li, Qun Zheng, Bin Jiang A Classification and criterion of Vortex Boundary based on Eigenvector	Julio J. Martineli, Nikolay Kryukov Study of turbulent transport in magnetized plasmas with flow using symplectic maps
Vladimir Hizhnyakov, Vadim Boltrushko Singular amplification of low- frequency fluctuations in optical spectra of 4He quantum liquid		
17:45- 18:00 Preparation, interconnections		
18:00-18:45 <u>Room 1</u> (PS5) Plenary Session Chair: Christos H Skiadas Speaker: Elena Babatsouli Title: Order in disordered speech data		
18:45- 19:00 Preparation, interconnections		

19:00-20:00 SCS7 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
Astronomy	Special Session Liutex and Third Generation of Vortex Identification VII Chair: Xiangrui Dong	Nano
Valeriy S. Abramov Higgs boson and Higgs field in fractal models of the Universe: active femtoobjects, new Hubble constants, solar wind, heliopause	Weiwun Zhao, Decheng Wan* Vortex Identification for Study of Flow Past Stationary and Oscillating Cylinder	Alexandr Valyaev, Sergey Petrov, Alexei Valiaev Gurgun Aleksanyan Ways to Accelerate Nanotechnologies Implementation in the Health Care System
Paniveni U. Shankar Supergranulation – A Chaotic Phenomenon	Jie Chen, Guoyu Wang, Biao Huang, Qin Wu Numerical investigation of the cavitation vortex interaction around a twisted hydrofoil with emphasis on the vortex identification method	Alexandr Valyaev, Sergey Petrov, Aleksey Valiaev, Oleg Apanasyuk Application of Special Nanomaterials in Medicine
Nada Jevtic A nonlinear search for delta \square Scuti- like pulsations across the whole frequency spectrum	Xiaoyang Zhao, Jie Chen, Biao Huang, Guoyu Wang The identification of tip leakage vortex of an axial flow waterjet pump by using Omega method and Liutex	Philippe Beltrame Selective transport of airborne microparticles in a microgravity environment
	Yumeng Tang, Yangwei Liu Comparison of Vortex Identification Methods for Corner Separation flow in a Compressor Cascade	
End of the 2nd Day		



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11:30- 12:00 Preparation, interconnections

12:00-13:30

SCS8

Special and Contributed Sessions

Room 1	Room 2	Room 3
<p>Special Session Identification and control of thermonuclear plasmas dynamics I Chair: Teddy Craciunescu and Andrea Murari</p>	<p>Special Session Liutex and Third Generation of Vortex Identification VIII Chair: Charles Nottage</p>	<p>Special Session Chaos in Nonideal Dynamical Systems Chair: Aleksandr Shvets</p>
<p>Andrea Murari et al. Introduction to identification and control of thermonuclear plasmas</p>	<p>Yiwei Wang, Rundi Qiu, Renfang Huang, Chenguang Huang Liutex application in the cavitating flows around a three- dimensional bulletdimensional bullet</p>	<p>Aleksandr Shvets Overview of Scenarios of Transition to Chaos in Nonideal Dynamic Systems</p>
<p>Emmanuele Peluso et al. Assessing the effectiveness of synchronisation experiments in magnetic confinement fusion: information theoretic and recurrence criteria</p>	<p>Oscar Alvarez, Yifei Yu, Pushpa Shrestha, Chaoqun Liu Visualizing Liutex Core Using Liutex line and Liutex tubes</p>	<p>Aleksandr Shvets, Serhii Donetskyi Identification of Hidden and Rare Attractors in Some Electroelastic Systems with Limited Excitation</p>
<p>Teddy Craciunescu et al. Image based methods to investigate causality between time series relevant for plasma fusion diagnostics</p>	<p>Yumeng Tang, Yangwei Liu Study of Vortex Structure in a Linear Compressor Cascade Using Liutex and Local Trace Criterion</p>	<p>Tatyana Krasnopolskaya, Evgeniy D. Pechuk, Tatyana P. Konovalyuk Oscillating System under Limited Excitation from Generator or Wave Field</p>
<p>Riccardo Rossi Neural computation for the assessment of correlations between quantities in large multimachine databases</p>	<p>Yufan Wang, Weihao Zhang Analysis of Vortex Evolution in Turbine Rotor Tip Region Based on Liutex Method</p>	<p>Tatyana Krasnopolskaya, Evgeniy D. Pechuk, Mariia O. Rudnytska</p>

		Cardiorespiratory System as Nonideal System with Limited Excitation
Meryem Abaakil Control of Dissipative Dynamical Systems		Evgeniy D. Pechuk, Tatyana S. Krasnopol'skaya, Mariia O. Rudnytska Cardiorespiratory System as Nonideal System with Limited Excitation
13:30- 13:45 Preparation, interconnections		
13:45-14:30 Room 1 (PS6) Plenary Session Chair: Dimitrios Sotiropoulos Speaker: Mark Edelman Title: Evolution of Systems with Power-Law Memory: Do We Have to Die?		
14:30- 15:00 Break		
15:00- 15:15 Preparation, interconnections		
15:15-16:00 Room 1 (PS7) Plenary Session Chair: Christos H Skiadas Speaker: Banlue Srisuchinwong Title: A Simplest 1-BJT-Based Chaotic Hyperjerk Circuit: Its Minimized Damping for Maximized Attractor Dimension, and Hidden Attractors		
16:00- 16:15 Preparation and Interconnections		
16:15-17:30 SCS9 Special and Contributed Sessions		
Room 1	Room 2	Room 3
Special Session Identification and control of thermonuclear plasmas dynamics II Chair: Teddy Craciunescu and Andrea Murari	Models I	Special Session Chaos and Global Indeterminacy in Economic Models Chair: Beatrice Venturi
F. Pisano, B. Cannas, A. Fanni, A. Murari et al. Edge Localised Modes: evidence of chaotic dynamics?	Anuraj Singh Bifurcation and Chaos in a Discrete Prey-Predator Model	William A. Barnett, Giovanni Bella, Taniya Ghosh, Paolo Mattana, Beatrice Venturi Shilnikov Chaos, Low Interest Rates, and New Keynesian Macroeconomics
J. Vega, A. Murari et al. Predicting the dynamics of nonlinear instabilities: disruptions in Tokamaks	Sudhir Singh N-Rogue Waves in a New (2+1)-Dimensional Integrable Boussinesq Model	Marco Desogus, Beatrice Venturi Systemic effects of the credit crunch. A dynamic mathematical model

<p>A.M. Croitoru, F. Spineanu, M. Vlad Sequence of random wave excitations and minimum entropy production in tokamak plasma</p>	<p>Shunji Kawamoto Interaction of Limit Cycles for the FitzHugh-Nagumo Model</p>	<p>Beatrice Venturi Chaos and Global Indeterminacy in an Environmental Economic Growth Model</p>
<p>Dragos Palade, Madalina Vlad, Florin Spineanum Turbulent transport control by tokamak plasma rotation</p>	<p>Iknur Kusbeyzi Aybar Hopf bifurcation analysis for the Fitzhugh-Nagumo model of a spiking neuron</p>	<p>Beatrice Venturi, Danilo Liuzzi Growth, Sustainability and Ggreen Poverty Traps In a Simple Integrated Model</p>
<p>M.V. Korovina, I.N. Smirnov, V.Yu. Smirnov On the asymptotics of the solution of a Klein-Gordon-Fock equation with a variable coefficient for the Laplacian</p>	<p>Ilknur Kusbeyzi Aybar, Brigita Fercec, O. Ozgur Aybard, Masa Dukaric Limit cycles of the Schnakenberg chemical reaction model</p>	
<p>17:30- 17:45 Preparation, interconnections</p>		
<p>17:45-19:00 SCS10 Special and Contributed Sessions</p>		
<p><u>Room 1</u></p>	<p><u>Room 2</u></p>	<p><u>Room 3</u></p>
<p>Bifurcation and Chaos I</p>	<p>Models II</p>	<p>Risk</p>
<p>Elias D. Tsirbas, Frangiskos V. Topalis, Evangelos N. Skoubris Switching Frequency Bifurcations in a LED Boost Driver</p>	<p>Bo-Wen Shen Homoclinic Orbits and Solitary Waves within the Non-dissipative Lorenz Model and KdV Equation</p>	<p>Alexander Valyaev, Gurgen Aleksanyan, Alexey Valyaev, Oleg Arkhipkin Statistic Methods for Assessments of Risks and Damages at Nuclear Power Plants</p>
<p>Mauricio Diaz Furstenberg family with IP set in Distributional Chaos</p>	<p>Bo-Wen Shen, Roger A. Pielke Sr., Xubin. Zeng, Jong-Jin Baik, Tiffany A.L. Reyes, Sara Faghih-Naini Robert Atlas, Jialin Cui Is Weather Chaotic? Coexistence of Chaos and Order within a Generalized Lorenz Model Country</p>	<p>Alexandr Valyaev, Aleksey Valiaev, Oleg Apanasyuk Integrated Emergency Management and Risks for Mass Casualty Emergencies</p>
<p>Yaşar Selim Bahçeci, Fatih Özkaynak A New Substitution Box Structure Based on Nose-Hoover Chaotic System</p>	<p>Özgür Gültekin, Çağatay Eskin Effect of Harvesting on Extinction Time in a Stochastic Population Model</p>	<p>V J Law, D P Dowling Saint Elmo's fire: its formation and measurement on both natural and artificial structures</p>
<p>Julio Rodriguez, Max-Olivier Hongler How chaotic dynamics drive a vintage grill-room spite</p>	<p>Arkady Kitover On solvability of the equation $\lambda f - w(f \circ \phi) = g$</p>	<p>Vasily Lubashevskiy Principle of reactive-decision making in urban recovery after disaster under uncertainty of resilience boundaries</p>
	<p>S. F. Pellegrino</p>	

	Numerical methods for the nonlocal wave equation of the peridynamics	
19:00- 19:15 Preparation, interconnections		
19:15-20:00 SCS11 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
Bifurcation and Chaos II	Special Session Liutex and Third Generation of Vortex Identification IX Chair: Yangwei Liu	Data Analysis I
Lev Kuzmin, Elena Efremova Application of ultrawideband chaotic signals for wireless ranging	Changpeng Guo ; Yongfu Wu; Zhongxing Liu; Dapeng Zhang Study on eddy current of all-oxygen reheating furnace based on Liutex vortex recognition method	Christopher Gonzalez, Claudia Lainscsek, Terrence Sejnowski, Christophe Letellier Assessing observability from recorded data using Delay Differential Analysis (DDA)
Nikolai A. Magnitskii Traveling waves and spatio-temporal chaos in nonlinear partial differential equations		Radim Panis, Martin Kološ, Zdeněk Stuchlík Determination of chaotic behaviour in time series generated by charged particle motion
Andrzej Gecow Life evolves in experimentally confirmed 'half-chaos' of not fully random networks, but not 'on the edge of chaos'		

End of the 3rd Day



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11:30- 12:00 Preparation, interconnections

12:00-13:30

SCS12

Special and Contributed Sessions

<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
Fractals I	Optics - Models - Methods	Data Analysis II
Alexander A. Potapov, Dmitriy S. Klyuev, Anatoly M. Neshcheret, Oleg V. Osipov Opportunities for using strip and fractal antennas based on chiral metamaterials in 5G networks	Adriana Pedrosa Biscaia Tufaile, Alberto Tufaile Hysteresis loops, dynamical systems and magneto optics	Volodymyr Rusyn, Christos H. Skiadas, Aceng Sambas Software realization, analysis and experimental investigation of equivalent inductance
Olga P. Abramova, Andrii V. Abramov Qubits and fractal structures with elements of the cylindrical type	Alberto Tufaile, Adriana Pedrosa Biscaia Tufaile Halo dynamics: from rainbows to black holes	O.M. Kiselev Stochastic properties of two-wheeled robot on soft surfaces
Maricel Agop, Alina Gavriluț, Lucian Eva, Gabriel Crumpei Fractal atomicity, a fundamental concept in the dynamics of complex systems	Alberto Tufaile, Michal Snyder, Timm A. Vanderelli, Adriana Pedrosa Biscaia Tufaile Investigating dynamical systems using Optic-Fluidics	W.M. Macek, P. Figura, S. Górka Analysis of Reconnection in the Magnetosphere on Kinetic Scales
Elena S. Alekseeva, Alexander A. Potapov, Alexander E. Rassadin On Approximate Conformal Mappings for Domains with Fractal Boundaries	Alina Gavriluț Atoms and pseudo-atoms in quantum measure theory	Zhengce Zhang Asymptotic behavior of solutions for a parabolic free boundary problem with nonlinear gradient absorption
Nilufar A. Azamova, Alexander A. Potapov, Alexander E. Rassadin On the Dirichlet Problem with Fractal Boundary Condition	Siavash H. Sohrab Connecting Bernoulli and Schrödinger Equations and its Impact on Quantum-Mechanic Wave Function and Entanglement Problems	B. Gunduza, O. Yenilmez, O. Ozgur Aybar Qualitative analysis of a chaotic circuit with complex dynamics

	<p>Farzaneh Boroumand, Hassan Doosti, Mohammad Taghi Shakeri, Nino kordzakhia, Mehdi Salehi Tilted Nadaraya-Watson Nonparametric Regression Estimator</p>	<p>B. Gunduza, O. Yenilmez, O. Ozgur Aybar Qualitative analysis of a chaotic circuit with complex dynamics</p>
13:30- 13:45 Preparation, interconnections		
13:45-15:15 SCS13 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
Fractals II	System I	Sequence and Game Theory
<p>Vasileios Drakopoulos, DuYong Pak, SongIl Ri Generalised univariable fractal interpolation functions</p>	<p>Asher Yahalom, Natalia Puzanov Time Dependent Stabilization of a Hamiltonian System</p>	<p>Michele Castelluzzo, Alessio Perinelli, Leonardo Ricci Generation of surrogates of spike-like chaotic sequences</p>
<p>Matteo Nicolini Fractal Dimension of Braided Rivers from Detailed Two-Dimensional Hydrodynamic Simulations</p>	<p>M.M. Khoshyaran, J.P. Lebacque Interregional network competition and dynamical systems</p>	<p>Dimitrios Dellaportas, Anna Alexandratou Rigorous Scattering for Spheres of Arbitrary Size. A non-Linear Sequence</p>
<p>Alexander A. Potapov, Dmitriy S. Klyuev, Anatoly M. Neshcheret, Oleg V. Osipov Fractal antennas based on biisotropic and bianisotropic chiral metamaterials</p>	<p>Alexander M. Krot A model of stabilization of chaotic wave processes in complex dynamical systems from the point of view of the matrix decomposition theory</p>	<p>Georges Sarafopoulos, Kosmas Papadopoulos Dynamics of a Bertrand Duopoly Game with Differentiated Goods, Heterogeneous Expectations and Relative Profit Maximization</p>
<p>Caio M. Vicentini, Cristina P. de Campos, Werner Ertel-Ingrisch, Diego Perugini, Leila S. Marques, Donald B. Dingwell Chaotic Mixing Experiments at High Temperature: Unravelling a Large Magmatic Province</p>	<p>Anatolij K. Prykarpatski A symmetry analysis of differential systems on functional manifolds</p>	<p>Georges Sarafopoulos, Kosmas Papadopoulos On a Cournot Dynamic Game with Cost Uncertainty and Relative Profit Maximization</p>
<p>Didier Samayoa Ochoa The topological Hausdorff dimension and improved oil recovery on Menger sponge and Cantor Tartan</p>	<p>B.I. Usama, S. Morfu, M. Rossé, P. Marquié, J.M. Bilbault Vibrational Resonance in inhomogeneous and space-dependent nonlinear damped systems</p>	<p>Yiannis Dimotikalis Distributions of Max Entropy Frontier on Portfolio Selection</p>
15:15- 15:30 Break		
15:30-16:15 <u>Room 1</u> (PS8) Plenary Session		

Chair: Jean-Marc Ginoux Speaker: Riccardo Meucci Title: Recent Advances in Controlling Chaos		
16:15- 16:30 Preparation, interconnections		
16:30-18:00 SCS14 Special and Contributed Sessions		
<u>Room 1</u>	<u>Room 2</u>	<u>Room 3</u>
Special Session Chaos in Josephson Nanostructures Chair: Yury M. Shukrinov	System II	Society and Economy
Yury Shukrinov, Andre Botha, Mohammad Kolahchi Chaos in Josephson nanostructures: short review	Usama B. Ibrahim, S. Morfu, M. Rosse, P. Marquie, J.M. Bilbault Vibrational Resonance in inhomogeneous and space- dependent nonlinear damped systems	Luca Grilli, Domenico Santoro A Statistical Ensemble Based Approach for Entropy in Cryptocurrencies Markets
André E. Botha, Veronika Hajnová, Yury M. Shukrinov Analysis of Bifurcations in a Model of Coupled Josephson Junctions: Some Challenges for Standard Numerical Continuation Methods	Shunzeng Wang Jun Jiang, Ling Hong Unveiling the Characteristics of Stick-slip Oscillations in A Piecewise Smooth Rotor/stator Rubbing System	Harold M Hastings, Tai Young- Taft Empirical scaling and dynamical regimes for GDP: challenges and opportunities
Jasmina Tekić, Andre Botha, Petar Mali, and Yuri M.Shukrinov The ac driven Frenkel-Kontorova model: from Shapiro steps to chaos	Berenice Rojo-Garibaldi, Manuel Contreras-López, Matías Carvajal, David Alberto Salas-de- León, Julyan H. E. Cartwright Nonlinear Analysis of El Niño- Southern Oscillation Events from Coastal Temperature Time Series in the Eastern South Pacific: Implications for the Regional Bioclimate System	Caroline Lima, Walter Aliaga, Juan Lazo Characterization of the Dynamic Behavior of the Net Present Value (NPV) in the Oil Market
A.Janalizade Javan, M. R. Kolahchi Fractal basin boundaries on to chaos in a Josephson junction model	Minos Axenides, Emmanuel Floratos, Dimitrios Katsinis, Georgios Linardopoulos M-Theory as a dynamical system generator	Konstantina Founta, Loukas Zachilas Battle of Salamis: Greeks were destined to win
Andrey L. Pankratov, Leonid S. Revin, Evgeniya V. Pankratova Chaotic regimes in Josephson junctions and chains	Rodica Luca Tudorache Existence of Solutions for a System of Fractional Boundary Value Problems	Malcolm David Lowe Visualizing Languages as Networks of Meaning
Claudio Guarcello, Davide Valenti, Bernardo Spagnolo, Vincenzo Pierro, Giovanni Filatrella Josephson-based Threshold Detector for Lévy-Distributed Fluctuations	Denis G. Zakharov Influence of Intrinsic Currents of Pyramidal Cells on the Weak PING Rhythm	Ihor Lubashevsky Two Types of Consciousness and Phase Transitions Between Them

<p>G. Filatrella, C. Barone, C. Guarcello, S. Pagano, A. Piedjou, V. Pierro Analysis of thermal and quantum escape times of Josephson junctions for signal detection</p>	
18:00- 18:10 Preparation, interconnections	
<p>18:10-18:50 Plenary Session Room 1 (PS9) Chair: Leszek Sirko Speaker: Wieslaw M. Macek Title: Reconnection and Turbulence in Space Plasmas on Kinetic Scales</p>	
<p>18:50-19:30 Plenary Session Room 1 (PS10) Chair: Wieslaw M. Macek Speaker: <u>Leszek Sirko</u>, Szymon Bauch, Małgorzata Białous, Vitalii Yunko, Pavel Kurasov, Jiri Lipovsky, Michał Ławniczak Title: What can we learn from the spectra of quantum graphs and microwave networks?</p>	
<p>19:30-20:00 Room 1 Closing Ceremony</p>	
End of the Conference	

Tuesday 9 of June

ROOM -1	
Event link	
https://isast.webex.com/isast/onstage/g.php?MTID=ee3a4b5cd17dc9d8e7187ea4b857e9707	
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Wednesday 10 of June

ROOM -1	
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Thursday 11 of June

ROOM -1	
Event link	
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ROOM -2	
Event link	
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Eventnumber:	163 065 2245
Eventpassword:	chaos2020
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ROOM -3	
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Friday 12 of June

ROOM –1	
Event link	
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Eventnumber:	163 944 1315
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ROOM –2	
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Eventpassword:	chaos2020
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ROOM –3	
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Eventnumber:	163 110 8328
Eventpassword:	chaos2020
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