

12th Chaotic Modeling and Simulation International Conference (CHAOS2019)

18-22 June, 2019, Cultural Centre of Chania, Crete, Greece (A. Papandreou 70)

Program

Session / Room	Date / Time	Authors / Talk Title / Event	Authors / Talk Title / Event
	8:30-9:30	Tuesday June 18	
Auditorium	9:30-10:00	Opening Ceremony	
Auditorium	10:00-10:50	Plenary Session (Chair: Leszek Sirko) Anastasios Bountis <small>Department of Mathematics, Nazarbayev University, Astana, Kazakhstan</small>	The Effect of Long Range Interactions on the Dynamics and Statistics of 1D Hamiltonian Lattices
Auditorium	10:50-11:40	Plenary Session (Chair: Anastasios Bountis) Leszek Sirko (Co-Authors: Michał Ławniczak and Jiri Lipovsky) <small>Institute of Physics, Polish Academy of Sciences, Warsaw, Poland</small>	Peculiar Properties of Open Quantum Graphs and Microwave Networks
	11:40-12:10	Coffee Break	
Auditorium	12:10-13:00	Plenary Session (Chair: Valeriy S. Abramov) Wiesław M. Macek <small>Faculty of Mathematics and Natural Sciences Cardinal Stefan Wyszyński University, Warsaw, Poland and Space Research Centre, Polish Academy of Sciences, Warsaw, Poland</small>	Turbulence in Space Plasmas on Magnetohydrodynamic and Kinetic Scales
	13:00-14:30	Lunch	
Auditorium	14:30-15:20	Plenary Session (Chair: Leszek Sirko) Changpin Li <small>Department of Mathematics, Shanghai University, China</small>	Dynamics of Hadamard-type fractional differential equation
Auditorium	15:20-16:10	Plenary Session (Chair: Leszek Sirko) Valeriy S. Abramov <small>Donetsk Institute for Physics and Engineering named after A.A. Galkin, Ukraine</small>	Active Nanoobjects, Neutrino and Higgs Boson in a Fractal Models of the Universe
	16:10-16:30	Coffee Break	

SC	Tuesday June 18	SPECIAL AND CONTRIBUTED SESSIONS	
Room 1	16:30-18:00	Chair: Willibald Plessas, Co-Chair: Andre M. McDonald	Cosmology - Particles - Plasma - Problem Solving
		Regularity and Chaoticity in Hadron Spectra Solving the Inverse Frobenius-Perron Problem via Monotonization of Random Variable Transformations Microwave oven plasma reactor moding and their detection	Willibald Plessas Michael A. Van Wyk, Andre M. McDonald V.J. Law, D.P. Dowling
Room 2	16:30-18:00	Chair: Olga P. Abramova, Co-Chair: Dominic Rochon	Fractal
		Coupled fractal structures with elements of cylindrical type Waves in Large Disordered Anisotropic Fractal Systems, in Clusters of Drones or Small-Size Space Vehicles, in Synthesized Space Antenna Aggregations, and in Radiolocation Characterization of the Principal 3D Slices Related to the Multicomplex Mandelbrot Set	Olga P. Abramova, Andrii V. Abramov Alexander A. Potapov Dominic Rochon
Room 3	16:30-18:00	Chair: Tatyana S. Krasnopolskaya	Biology and Chaos
		Causality Detection using CD-DDA Influence of the Heart Rate on Dynamics of Cardiorespiratory System Consciousness, as an emergent process Toxicological evaluation of the copper element in chronic insufficient subjects. In-vivo investigations by blood tests	Claudia Lainscek Evgeniy D. Pechuk, Tatyana P. Konovalyuk, Tatyana V. Sobol, Tatyana S. Krasnopolskaya Gabriel Crumpei, Alina Gavrilut, Maricel Agop, Lucian Eva N. Sahraoui
Room 4	16:30-18:00	Chair: A. M. Krot, Co-Chair: Volodymyr Rusyn	Chaotic - Chua Circuit
		Modified Chaotic Circuit of the Van der Pol-Duffing A Spectral analysis of Chaotic oscillations in the model of the Chua's circuit with smooth nonlinearity developed with use of matrix decomposition The associative memory based on the synchronisation effect of the Chua's circuit Origin of wave gravitational field with point of view of the statistical theory of cosmogonical body formation and the theory of retarded gravitational potentials	Volodymyr Rusyn, Andrii Veryga, Lenka Pribylova A. M. Krot, U. A. Sychou Ryhor Prakapovich, Uladzislau Sychou Alexander M. Krot
	19:00-19:30		Welcome Reception

Wednesday June 19			
SC	Wednesday June 19	SPECIAL AND CONTRIBUTED SESSIONS	
Room 1	9.00-10.30	Chair: Aleksandr Shvets, Co-Chair: Vyacheslav M. Somsikov	System Modeling
		Comparative analysis of critical exponents in diverse dimensions: epsilon expansion and conformal bootstrap approach	Mikhail V. Kompaniets, Andrey Kudlis
		Deterministic irreversibility mechanism and basic element of matter	Vyacheslav M. Somsikov
		Constructive Redefinition of Extrema Concepts and Universal Method of Global Optimization	Alexander V. Sosnitsky
		Regular and Chaotic Attractors in System "Tank with a Liquid – Source of Excitation"	Aleksandr Shvets
Room 2	9.00-10.30	Chair: M. E. Filippakis, Co-Chair: Andrew Vince	Systems - Equations - Attractors
		Weak signal detection based on chaotic resonance in fractional Duffing system	Yanmei Kang
		Well posedness of a fractional Klein–Gordon Schrodinger system	M. N. Poulou, M. E. Filippakis
		A note on the global posedness of a semi-discrete fractional Klein Gordon System	M. E. Filippakis, M. N. Poulou
		The Attractor of an Iterated Function System	Michael Barnsley, Andrew Vince
Room 3	9.00-10.30	Chair: David Garrison	Fields - Systems - Attractors
		The Spontaneous Development of Magnetic Fields in the Early Universe from Relativistic MHD Turbulence	David Garrison
		Detection of Crossing/Sliding Regions and their Sets of Attraction in Non-Smooth Dynamical Systems	Luciano Lopez
		Multiatractor Hyperchaotic System with a Small Perturbation of the Phase Trajectories	Vadim Prokopenko
		Probabilistic Rotational Dynamics in Dynamical Systems with Chaotic Compositional Multia attractors	Vadim Prokopenko
Room 4	9.00-10.45	Chair: Yiannis Dimotikalis	Systems - Dynamics - Spaces
		The discrete Lefever-Lejeune equation: Kato-Lai existence-type theorems and insights on the dynamics	Nikos I. Karachalios, Paris Kyriazopoulos, Konstantinos Vetas
		A Class of Möbius Iterated Function Systems	Gökçe Çakmak, Ali Deniz, Şahin Koçak
		Realizations of the Snowflake Metric Spaces in the Euclidean Spaces	Derya Çelik, Şahin Koçak, Fatma Diğdem Koparal, Yunus Özdemir
		Signal-to-Noise Ratio in Dynamic Stochastic Systems in Stochastic Resonance Mode	Akmaral K. Imanbayeva, Altynai Murat, Al-Farabi Kazakh
10:30-11:00		Coffee Break	

SC	Wednesday June 19	SPECIAL AND CONTRIBUTED SESSIONS	
Room 1	11:00-13:00	Chair: M. Hnatič	Flows - Stochastic - Turbulence
		Effect of long-range spreading on two-species reaction-diffusion system Surface Roughening in the presence of Long-Range interactions Stochastic turbulent stirring of a non-conserved order parameter Turbulent dynamo in generalized helical magnetohydrodynamic turbulence Tricritical directed percolation with long-range spreading	Š. Birnšteinová, M. Hnatič, D. Lorko, T. Lučivjanský Š. Birnšteinová, T. Lučivjanský, V. Škultéty Michal Hnatič, Georgii Kalagov M. Hnatič, G. Kalagov, T. Lučivjanský, P. Zalom M. Hnatič, T. Lučivjanský, L. Mizisin
Room 2	11:00-13:00	Chair: O.O. Pokutnyi	Lyapunov
		The relationship between the Hurst exponent, the ratio of the mean square successive difference to the variance (Abbe value), and the number of turning points of a time series Symplectic local Lyapunov exponents occur in pairs Magnetospheric chaos and dynamical complexity response during storm time disturbance Lyapunov-Poincare equation and homoclinic chaos	Mariusz Tarnopolski Jochen Merker Olusola O.I. , Oludehinwa I.A. , Bolaji O.S. , Odeyemi O.O. , Njah A.N. O.O. Pokutnyi
Room 3	11:00-13:00	Chair: Gabriel Orman	Stochastics
		Stochastic Motion of Tagged Particles in a Bath Responding to External Fields Evolution equations for probabilistic characteristics of Lévy-type processes On the universality of the normal law and some connected problems useful in the chaotic and complex systems analysis Theory vs Applications? Lessons Learned from First Exit Time Modeling Some Implications of Invariant Model of Boltzmann Statistical Mechanics to the Gap between Physics and Mathematics Stability of the Iteration Process to Estimate Weibull Parameters According to Small Number of Right-Censored Life Data	V. Lisý, Jana Tóthová Irina V. Melnikova, Uliana A. Alekseeva, Vadim A. Bovkun Gabriel V. Orman, Irinel Radomir, Sorina-Mihaela Stoian Christos H. Skiadas Siavash H. Sohrab Liyang Xie, Bo Qin, Ningxiang Wu
Room 4	11:00-13:00	Chair: Vic Law	Plasma - Optics
		A Dynamical Model for Plasma Fireball A Two-photon nonlinear wave in waveguide with graphene monolayer Light Scattering as a cause of air pollution measurement Research of Atomic and Molecular Terms Chaotic	Sebastian Popescu, Dan G. Dimitriu Guram T. Adamashvili Dimitrios Dellaportas, Anna Alexandratou Nikolay V. Serov
Room 5	11:00-13:00	Chairs: Marcin Molski	Neuron - Nonlinear
		Global firing rate contrast enhancement in E/I neuronal networks by recurrent synchronized inhibition Brain dynamics explained by means of spectral-structural neuronal networks Stabilisation of Nonlinear Viscoelastic Fourth-order Problem Determination of Nonlinear and Strongly Correlated Parameters Characterizing the Complex Systems Nonlinear integral transforms and laser dynamics Nonlinear Phenomena in an Interrupted Electric Circuit with State Dependent Input	Fang Han, Xiaochun Gu, Zhijie Wang, Hong Fan Maricel Agop, Alina Gavrilut, Gabriel Crumpei, Lucian Eva Mabrouk Meflah, Mohamed Atouat, Salim Messaoudi Marcin Molski Yu Okulov S. Uchino, H. Ohtagaki, T. Kousaka, H. Asahara
	12:30-13:30		Lunch
Excursion	13.30-22.00	Wednesday, June 19	Half Day Excursion to Knossos

Thursday June 20		
Auditorium	Symposium in Honor of the 60th Birthday of Giorgos P. Tsironis	
	9.00-10.15	Registration
	10.15-18.00	Sessions
	See Symposium Full Program	
CHAOS 2019 CONFERENCE		
SC	Thursday June 20	SPECIAL AND CONTRIBUTED SESSIONS
Room 1	9.30-11.00	Chair: Marek Lampart Communication - Coupling
	Chaotic communication systems Adaptation of Coupling Estimation Technique Based on Phase Dynamics Modeling to EEG Analysis During Epileptic Seizure Characterization of Interconnected Dynamical Systems Coupling by Complex Networks Chaotic behaviour of the CML model with respect to the state and coupling parameters	Mykola Kushnir B.P. Bezruchko, E.V. Navrotskaya (Sidak), D.A. Smirnov, M.V. Sinkin, A.S. Karavaev T. Craciunescu, A. Murari, M. Gelfusa Marek Lampart, Tomáš Martinovič
Room 2	9.30-11.00	Chair: Vic Law Crystals - Alloys
	The research of phase transformations order-disorder in Ni ₂ AlNb alloy Chaoticity of transient current behavior and Detrended Fluctuation Analysis parametrization in As ₂ Te ₃ (In) at different temperatures Photoabsorption profile and satellite features of sodium a(3s-3p) perturbed by ground Lithium atoms	Aleksandra A. Chaplygina, Michail D. Starostenkov, Pavel A. Chaplygin Avadis S. Hacınıyan, Yani Skarlatos, Gökhan Şahin, H. Ahmet Yıldırım, A. Cihan Keles N. Lamoudi, M. T. Bouazza, M. Bouledroua
Room 3	9.30-11.00	Chair: Asher Yahalom Flows
	Isokinetic curves of the Navier- Stokes equation Chaotic behavior in a thermosyphon model with binary fluid Modelling of Multiphase Flow as Random Process The Fluid Dynamics of Spin - a Fisher Information Perspective	Guy Cirier Ángela Jiménez-Casas Ivan V. Kazachkov Asher Yahalom
Room 4	9.30-11.00	Chair: Tatiana F. Filippova Systems and Chaos
	Approaches to Estimating the Dynamics of Interacting Populations with Impulse Effects and Uncertainty Self-organization of structure of the poetic literary texts of V. S. Vysotsky Chaos distributional systems in MDS with action sub group in homotopy groups of spheres	Tatiana F. Filippova, Oxana G. Matviychuk Polina P. Tkachova Mauricio Diaz
	11.00-11.30	Coffee Break

SC	Thursday June 20	SPECIAL AND CONTRIBUTED SESSIONS	
Room 1	11:30-13:30	Chair: Paul A. Meehan	Instability
		Investigation of chaotic instabilities in railway wheel squeal Least-order models for generic instabilities in fluid mechanics Nonlinear Dynamics of Complex Space Charge Structures at the Origin of Low-Frequency Plasma Instabilities Synchronization and Its Analysis in Thermoacoustic Instability Induced in Combustion	Paul A. Meehan Luc Pastur, Nan Deng, Marek Morzynski, Bernd R. Noack Sebastian Popescu, Dan G. Dimitriu Jiazhong Zhang, Wei Wang, Yan Liu, Peipei Li
Room 2	11:30-13:30	Chair: Beatrice Venturi, Co-Chair: Walter Aliaga	Market - Economy and Chaos
		Market share dynamics in Vidale-Wolfe and Lanchester models under delayed affine feedback advertising policy Steady-states, stability and bifurcations in multi-asset markets with bounded rational investors Chaos in Demand Management Models Sunspot in the Chamley Optimal Control Model Innovation Processes and Chaos in Economic Systems	Walter Aliaga, Amit Bhaya Roberto Dieci, Noemi Schmitt, Frank Westerhoff Natalia Kirkova, Anna Kostenko Danilo Liuzzi, Beatrice Venturi Pavel Zakharchenko, Tatyana Kungurtseva-Mashchenko, Viktor Mukhin
Room 3	11:30-13:30	Chair: S. Roy Choudhury	Oscillations
		Coexistence of Attractors in Coupled Oscillatory System The Structure of Chaotic Attractors of Oscillators Chaotic Oscillations, containing damped Oscillations Various Dynamical Regimes, and Transitions from Homogeneous to Inhomogeneous Steady States in Oscillators with Delays and Diverse Couplings Stick motions occur on two mass impact system with forced vibration based on a pair of gears Duration of real progress in child speech	B. Deruni, A. Hacinliyan Vadim Prokopenko Ryan Roopnarain, S. Roy Choudhury Tomoaki Minowa, Hideyuki Kato, Hiroyuki Asahara, Shu Karube, Takuji Kousaka Elena Babatsouli
Room 4	11:30-13:30	Chair: Yiannis Dimotikalis	Diffusion Systems - Distributions
		Mosaic patterns in reaction-diffusion systems Reaction-Diffusion Systems and Propagation of Limit Cycles with Chaotic Dynamics Simulation of Mixed Binomial Distribution to Five-Star Rating Data Poisson distribution in the distribution probability of chaotic microwave cavity frequency spectrum with symmetrical location of metal rods	Dalia Ezzeddine, Rabih Sultan Shunji Kawamoto Yiannis Dimotikalis El' M. Ganapolskii, Zoya E. Eremenko, Aleksey A. Breslavetz
	13:30-14:30		Lunch

SC	Thursday June 20	SPECIAL AND CONTRIBUTED SESSIONS	
Room 1	14:30-16:30	Chair: Georgios H. Vatistas, Co-Chair: Vladimir L. Kalashnikov	Solitons
		Revolving Soliton Clusters in Regular Polygonal Formation Higher-order perturbation effects in frequency and time-division multiplexed networks under strong dispersion-managed solitons propagating with different energies Chaos Versus Order: Vivifying Battle Inside A Dissipative Soliton	Hamid Ait Abderrahmane, Pooya Soltania, Georgios H. Vatistas Francisco J. Diaz-Otero, Omar Guillan-Lorenzo Vladimir L. Kalashnikov
Room 2	14:30-16:30	Chair: Shunji Kawamoto	Spaciotemporal Chaos - Waves
		Reservoir computing as observers of spatio-temporal chaos Intermittency of Chaos Functions and the Belousov-Zhabotinsky Reaction Excitation of Peregrine-type waveforms from vanishing initial conditions in the presence of periodic forcing Properties of Discrete Rotation-Translation-Reflection Operations on Closed Loops Generating Basic Patterns like Sinusoidal Waves	Lucas Illing, Noah Shofer Shunji Kawamoto Konstantinos Vetas Bernd Binder
Room 3	14:30-16:30	Chair: Wolfgang Kinzel	Delay
		An overview of asynchronous delay iterations: mathematical study and algorithms Chaos synchronization in nonlinear networks with time-delayed and fluctuating couplings Influence of Delay on Chaotization of the Dynamical System "Generator - Piezoceramic Transducer" Finite-time chaos synchronization of the delay hyperchaotic Lü system with disturbance	Christophe Guyeux Wolfgang Kinzel Aleksandr Shvets, Serhii Donetskyi Yan Zhou, Juanjuan Huang, Zuolei Wang, Xuerong Shi
Room 4	14:30-16:30	Chair: M.M. Kostenko, Co-Chair: Vic Law	Flows - Modeling - Random
		Effects of a randomly moving medium on a random kinetic growth: renormalization group analysis near $d=2$ Anisotropic magnetohydrodynamic turbulence near two spatial dimensions Micropolar meets Newtonian in 3D. The Rayleigh-Bénard problem for large Prandtl numbers Mechanical low to high frequency converter via difference combination resonance Application of PRNGs to Monte-Carlo Integration Problems	M.M. Kostenko, P.I. Kakin Eva Jurcisinova, Marian Jurcisin, Richard Remecky Piotr Kalita, Grzegorz Łukaszewicz Jorge Galan Vioque Avadis Hacınliyan, Engin Kandiran
16:30-17:00		Coffee Break	

PS	16:30-17:00	POSTERS	POSTER SESSION
		Dynamics of Duffing System with Fractional Order elasticity	Khaled Aledealat
		Multidimensional Effects of combined Chaotic audio and video signals	Asgar Azari
		Infinite Depth Penetration of Electromagnetic Energy Using Chaos Generators	Asgar Azari
		A Thermocurrent Generator Based on the Photosynthesis System: The Quantum Chaos Approach	Sohrab Behnia, Parisa Hosseini-zhad, Samira Fathizadeh
		Applying the Kernel PCA Method to Reveal the Coexistence of High-dimensional Chaotic and Non-Chaotic Orbits: A Study using a Generalized Lorenz Model	Jialin Cui, Bo-Wen Shen
		A three-dimensional ecohydrodynamical model of the Puck Bay "EcoPuckBay". Part 1: Hydrodynamical module	Lidia Dzierzbicka-Glowacka, Dawid Dybowski, Maciej Janecki, Artur Nowicki, Jaromir Jakacki
		A chaotic quantum secure communication scheme base on mixed open system	Nafiseh Hematpour, Sodeif Ahadpour
		Projective Synchronization of Quantum Chaos in Ikeda Map	Nafiseh Hematpour, Sodeif Ahadpour
		Implementation of a chaotic map for simulation and prediction of temporal turbulent wave front phase fluctuations	Saeed Heydari, Hossein Saghaififar
		Evolution of Basin Entropy and Existence of Fractal Basin Boundaries in a Galactic Model	Vinay Kumar, Zakir Husain
		Complete Replacement Synchronization of Chaos in Generalised Lotka Volterra Models via Adaptive Control Method	Nitu Kumari, Shubhangi Dwivedi
		Prediction Model of Microstructure Evolution and Fatigue Crack Propagation Behavior of Superalloys in Service	Yang Liu, Lei Wang, Xiu Song, Wen L. Cai, Jin L. An
		Engineering of a Temperature Dependent Thermal Bath Coupled to a Biosystem	M. Salimi, S. Behnia, S. Fathizadeh
		Butterfly Effects and Chaos within a Generalized Lorenz Model: New Insights and Opportunities	Bo-Wen Shen
		Innovation Methods in Management Risks at Mass Casualty Emergencies	Alexander Valyaev, Petrov Sergey, Alexey Valyaev, Gurgen Aleksanyan
		Study on the precipitation stress model of gamma-prime phase of GH4742 alloy during aging process	Lei Wang, Yang Liu, Xiu Song
		Logarithmic Solar system	Randhir Bhavlat Chavhan
		Modulating the Light-Driven conductivity in a Biosystem	E. Javan Shour, S. Fathizadeh, S. Behnia
		Dual phase synchronization of chaotic systems using nonlinear observer based technique	Vijay Kumar Shukla
		Exponential synchronization of chaotic systems with parameter mismatches	Vijay K. Yadav, Subir Das
Thursday June 20	19.00-23.30	Bus depart at 19:00 from the Conference Venue	Farewell Dinner

Friday June 21			
SC	Friday June 21	Tsironis Symposium - 9:30 - 18:30	
Auditorium	9:30-18:30	See Symposium Full Program	
CHAOS 2019 CONFERENCE			
SPECIAL AND CONTRIBUTED SESSIONS			
SC	Friday June 21	Chair: Vadim Prokopenko, Co-Chair: U. Paniveni	
Room 1	10.00-11.30		Fractals - Granulation - Metamaterial - Nanofluid
		An approach to supergranulation through its parameters Composite Multiattractor Consisting of Attractors Rossler Roads to chaos in natural convection in an inclined cavity containing nanofluid	U. Paniveni Vadim Prokopenko Sabiha Aklouche-Benouaguef, Saad Adjal, Belkacem Zeghmati
Room 2	10.00-11.30	Chair: Alexander A. Potapov, Co-Chair: Milan Rajković	
		40 Years of Work with Textures and Fractals for Development of New Informational Technologies Homology and multifractal features of chaotic dynamic systems A Chaotic Figure Drawing Method and System	Alexander A. Potapov Milan Rajković, Miroslav Andjelković Brian Lynn
Room 3	10.00-11.30	Chair: Olga Dick	
		A coupled finite element method and multigrid method for fractional diffusion equation: codes in Matlab Integrable nonlocal models From Tonic Spiking to Bursting in the Nociceptive Neuron Model	M. Dalah, A. Derbazi Ziad Musslimani Olga Dick
Room 4	10.00-11.30	Chair: Yiannis Dimotikalis	
		Decision-making in a context of uncertainty Modeling of three fins (triangular, rectangular, semi-spherical) in heat transfer The exact number of positive solutions for a class of quasilinear boundary value problems of type strong Allee effect	Abdelbaki Laidoune Mohamed Roudane Hafidha Sebbagh
11:30-12:00		Coffee Break	

Friday June 21		SPECIAL AND CONTRIBUTED SESSIONS	
Room 1	12:00-13:30	Chair: Yiannis Dimotikalis	Time Series Analysis - Markets
		The Impact of Solar Weather on the U.S. Telecommunications Industry: A Dynamic Time Series Approach Assessment of the extent of complexity in some original data sets by calculation of Hölder exponent Dynamics of a Cournot duopoly game with differentiated goods between public and private firms	Theodore Daglis, Konstantinos N. Konstantakis, Panayotis G. Michaelides Irma Davitashvili, Natalia Zhukova, Manana Janiashvili, Tamar Matcharashvili Georges Sarafopoulos, Kosmas Papadopoulos
Room 2	12:00-13:30	Chair: Roger Thelwell	Time Series - Theoretical Approaches
		Scaling features analysis of the Internet Interdomain Routing data sets Determining Lyapunov Exponents of Acid Rains Time Series on Wet Rain Samples A Symbolic Approach to Lyapunov Characteristic Exponents On best approximation theory	Teimuraz Matcharashvili, Archil Prangishvili, Zurab Tseravidze, Natalia Zhukova, Levan Laliashvili Aysegul Sener Roger Thelwell Taoufik Sabar
Room 3	12:00-13:30	Chair: Sergey V. Dmitriev	Waves - in - Media
		Wave chaos signs in the eccentrically layered spherical cavity resonator with azimuthal homogeneous spectrum Traveling waves and space-time chaos in excitable media The temperature Kurdyumov's sharpening modes in the uranium - plutonium fission fuel of epithermal wave-travelling reactor Discrete breathers affect macroscopic properties Nonlinear spatially localized vibrational modes	Z.E. Eremente, Yu.V. Tarasov, I.N. Volovichev, Grigorios P. Zouros Nikolai Magnitskii Victor A. Tarasov, Sergey A. Chernenko, Andrey A. Kakaev, Vladimir P. Smolyar, Olga A. Sherstnyova, Evgeniy A. Tverdohlib, Vitaliy D. Rusov Sergey V. Dmitriev, Elena A. Korznikova, Mohit Singh, Abhisek Upadhyaya, Alina Morkina Elena A. Korznikova, Ramil T. Murzaev, Sergey V. Dmitriev, Olga V. Bachurina, Alexander S. Semenov, Maria N. Semenova
Room 4	12:00-13:30	Chair: Alexander A. Potapov	Metamaterial
		Electrodynamic analysis of antennas based on chiral metamaterials by the singular integral equations method Improving the MIMO systems efficiency by using antennas based on chiral metamaterials Chaos Generator with Nonlinear Element Based on Metamaterial	Dmitriy S. Klyuev, Anatoly M. Neshcheret, Oleg V. Osipov, Alexander A. Potapov, Yuliya V. Sokolova Dmitriy S. Klyuev, Anatoly M. Neshcheret, Oleg V. Osipov, Alexander A. Potapov, Yuliya V. Sokolova Dmytro Vovchuk
Friday June 21	13:30-14:00	CHAOS2019 Closing Ceremony	
	14:40-15:00	Goodbye Drinks	Lunch
Excursion	Saturday June 22 (8:00-18:00)		Full Day Excursion
SC	Saturday June 22	Tsironis Symposium - 9:30 - 13:30	
Auditorium	9:30-13:30	See Symposium Full Program	
	13:30	Closing	