Program CMSIM 2020

Chaotic Modeling and Simulation International Web Conference

22-24 October 2020

Thursday, 22.10.2020

TIME ZONE: CEST – Central European Summer

12:00- 12:30 Preparation, interconnections

12:30 – 13:00
Room 1
Opening Ceremony

13:00-13:40
Plenary Session
Room 1 (PS1)
Chair: Christos H Skiadas
Speaker: James A. Yorke and Sana Jahedi
Title:
The equations of nature and the nature of equations

13:40-14:20
Plenary Session
Room 1 (PS2)
Chair: James A. Yorke
Speaker: Harold M Hastings and Tai Young-Taft
Title: Vector difference equations, Gerschgorin's theorem, and design of multi-networks to reduce spread of epidemics

14:20- 14:30 Preparation, interconnections

14:30-16.00
SCS1
Special and Contributed Sessions

Room 1

Models and Modeling I

Gabriella Bretti, Maurizio Ceseri and Roberto Natalini
Mathematical models for the chemical damage of built heritage

Aija Anisimova, Inese Bula
Behaviour of Solutions of a Neuron Model

Maiya A. Rozhnova, Daniil V. Bandenkov, Victor B. Kazantsev, Evgeniya V. Pankratova

Chaotic brain extracellular matrix dynamics in the presence of periodically changing neuronal firing rate

Judita Buchlovská Nagyová
Dynamical properties of a non-smooth model with different closed curve equilibria

Zaamoune Faiza
Discovery Hidden Bifurcation Cells in Grid Multiscroll Chaotic Attractors Generated by Saturated Function Series

16:00- 16:15 Preparation, interconnections

16:15-17:45
SCS2
Special and Contributed Sessions

Room 1

Special Session:
Nonlinear Dynamics and chaos for energy harvesting and diagnostics
Chairs:
Prof. Grzegorz Litak, Prof. Andrzej Rysak, Prof. Sayan Gupta

Rajanya Chatterjee, Sunetra Sarkar, Sayan Gupta
Energy harvesting from flow induced vibrations in a flexible flapper

Dalroti M., R. Kumar, S. Gupta, S. F. Ali, G. Litak
Effects of additive noise on the energy harvesting characteristics of a base excited double pendulum

Grzegorz Litak, Andrzej Rysak, Jerzy Margielewicz, Damian Gaska
Dynamical responses of a bistable energy harvester with hysteresis

Grzegorz Litak, Marek Borowiec, Piotr Wolszczak
Dynamical responses of an energy harvester with impacts

S. Nadarajapillai, R. Gopal and V.K. Chandrasekar, Arkadiusz Syta, G. Litak
On identifying flow over separation characteristics of aerofoil using cross recurrence quantification analysis

Shaikh Faruque Ali, Dalroti Mohammad Huzefabhai, Rahul Kumar, Sayan Gupta, Grzegorz Litak
Effects of additive noise on the energy harvesting characteristics of a base excited double pendulum

17:45- 18:00 Preparation, interconnections

18:00-18:30
Room 1 (PS3)
Plenary Session
Chair: Dimitrios Sotiropoulos
Speaker: George Savvidy
Title: Maximally Chaotic Dynamical Systems

18:30-19:00 **Room 1 (PS4)** **Plenary Session** **Chair: George Savvidy** **Speaker: Marek Lampart and Jaroslav Zapoměl** **Title: Chaos identification of a colliding constraint body on a moving belt**
19:30-20:00 **Room 1 (PS5)** **Plenary Session** **Chair: Yiannis Dimotikalis** **Speaker: Evelina V. Prozorova** **Title: Mechanism of Formation of Fluctuation Phenomena**
20:00-20:30 **Room 1 (PS6)** **Plenary Session** **Chair: Dimitrios Sotiropoulos** **Speaker: Yiannis Dimotikalis and Georgios Krasadakis** **Title: Cryptocurrencies Portfolio Synthesis by Max Entropy Principle**
End of the 1st Day

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12:30- 13:00 Preparation, interconnections

13:00-14:30
SCS3
Special and Contributed Sessions

Room 1

Flows – Maps - Modeling

Lin Shi, Irina Mursenkova
Experimental investigation of turbulent structures in a supersonic boundary layer

Rubens A. Sautter and Reinaldo R. Rosa
Stability and Symmetry Analysis of Coupled Map Lattices

Dalah Mohamed
Finite Element Method for Solving Lorenz Chaotic Model

Adrian-Josue Guel-Cortez and Eun-jin Kim
A fractional order model of the cardiac function

Sabiha Aklouche-Benouaguef, Saad Adjal, Belkacem Zeghmati
Nanofluids in oscillatory natural convection: Scenario to chaos

Volodymyr Rusyn, Christos H. Skiadas
Simple inductor-free chaotic generator: design, research and computer modelling

14:30- 14:45 Preparation, interconnections

14:45-15:30
Room 1 (PS7)
Plenary Session
Chair: Christos H Skiadas
Speaker: Shunji Kawamoto
Title: Pattern Formation of Limit Cycles for 2-D Generalized Logistic Maps

15:30- 16:00 Break

16:00- 16:15 Preparation, interconnections
16:15-17:00 **SCS4** **Special and Contributed Sessions**
Room 1
Population Dynamics
C H Skiadas and C Skiadas How the unsolved problem of finding the Healthy Life Expectancy (HLE) in the far past was resolved: The case of Sweden (1751-2016) with forecasts to 2060 and comparisons with HALE from World Health Organization
Malcolm David Lowe The Hidden Architecture of Meaning in Languages
Alexander V. Sosnitsky and Anatoly I. Shevchenko Universal Cosmology and Short-Range/Long-Range Theories
17:00- 17:15 Preparation, interconnections
17:15-18:45 **SCS5** **Special and Contributed Sessions**
Room 1
Models and Modeling II
Eun-jim Kim and Nicholas Pearce Modelling mechano-electric feedback and arrhythmia in a simplified multiscale cardiac model
Ashutosh Maurya and Anupam Priyadarshi Prediction of qualitative dynamics in population models through Holling's functional responses
A. Ngapasare, G. Theocharis, O. Richoux, Ch. Skokos, V. Achilleos Chaos and Anderson Localisation in Disordered Classical Chains: Hertzian vs FPUT models
Aleksandr Petukhov Modeling the dynamics of information representations of an individual based on the apparatus of quantum potential wells
Sergey Varbanets, Yakov Vorobyov Sequence of PRN's from elliptic curves over Z{pm}
Avinita Gautam, Anupam Priyadarshi Sensitivity of Dynamics of Toxoplasma Gondii and Host Immune Response
18:45- 19:00 Preparation, interconnections
19:00-19:30 **Room 1 (PS8)** **Plenary Session** **Chair: Christos H Skiadas** **Speaker: A. Shvets and S. Donetskyi** **Title: Generalizing of Attractor Notion for Spherical Pendulum Systems**

19:30-20:00
Room 1 (PS9)
Plenary Session
Chair: D. Sotiropoulos
Speaker: Vladimir L. Kalashnikov and Stefano Wabnitz
Title: Spatiotemporal Turbulence in a Multimode Fiber Laser

20:00-20:45
SCS6
Special and Contributed Sessions

Room 1

Models and Modeling III

Ilknur Kusbeyzi Aybar, Brigita Fercec, O. Ozgur Aybar, Masa Dukaric
The qualitative analysis of biochemical systems by using the methods of computational algebra

A. Maragkaki, G. Matalliotakis
Vaccination coverage against seasonal influenza of workers in the Primary Health Care units in the Prefecture of Chania

V.Yu. Smirnov, O.I. Kos, E.A. Yeseva
Rules and regulations of potential impact of acoustic factors from high-speed railway lines on environment and human body during construction of new facilities

End of the 2nd Day

Program CMSIM 2020

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Saturday, 24.10.2020

TIME ZONE: CEST – Central European Summer

12:30- 13:00 Preparation, interconnections

13:00-14:45
SCS7
Special and Contributed Sessions

Room 1

Time Series Analysis

Radim Pánis, Gopal Bhatta, Zdeněk Stuchlík
Modified RQA analysis of the γ-ray Variability in Blazars

U. PANIVENI
A study of supergranulation

Julio E. Sandubete, Lorenzo Escot, and Simone Giannerini
Estimating Lyapunov exponents from noise-contaminated time-series data

Octaviana Datcu, Florentina Nicolau, Jean-Pierre Barbot
A digital receiver for an analog transmitter

Dimitrios Dellaportas and Anna Alexandratou
Heat transfer by sea water to air and environment's impacts

Jafarzadeh Yousef
Computational method for solving systems of linear and nonlinear Fredholm integral equations

Jafarzadeh Yousef
Best Trapezoidal Approximation Solution of fuzzy nonlinear equations

14:45- 15:00 Preparation, interconnections

15:00-16:45
SCS8
Special and Contributed Sessions

Room 1

CHAOS and General Dynamics

Mauricio Díaz
Distributional chaos of type 2 via IP families applied to Nash equilibrium

Gromov V. A., Baranov F. S., Tsybakin A. Yu.
Prediction After a Horizon of Predictability: Non-Predictable Points and Partial Multi-Step Prediction for Chaotic Time Series

R. Hoseini and S. Behnia
Pseudo-random bit generator based on 2D chaotic map and its application in image encryption

Vijay K. Yadav and Amit K. Mishra
Finite-time synchronization of multi-scroll chaotic systems with sigmoid nonlinearity and uncertain terms

Haidar Sabbagh
Spiral Break up due to Core Expansion and its Elimination

Konstantinos N. Zafeiris and Marianna Koukli
Some remarks on the Corona-virus pandemic in Europe

16:45- 17:00 Break

17:00-17:30
Room 1 (PS10)
Plenary Session
Chair: K. Zafeiris
Speaker: Tatiana F. Filippova
Title: Interacting Populations: Dynamics and Viability in Bounded Domains under Uncertainty

17:30- 17:45 Preparation, interconnections

17:45-19:30
SCS9
Special and Contributed Sessions

Room 1

Chaotic Dynamics

Tai Young-Taft, Harold M Hastings
Time series analysis of GDP scaling and dynamical regimes

Radek Halfar
Dynamics of cardiac cell

Valeriy Grytsay
Spectral analysis and invariant measure in studies of the dynamics of the Krebs cycle

Jiří Tomčala Examination of Sudden Jumps in the Time Course of Approximate and Sample Entropy Values of Supercomputer Power Consumption
Bernd Binder Discrete Rotation-Translation Sequences on Closed Loops
Dalah Mohamed Multi-Grid Method to Simulate Growing Dynamical Systems: Codes in Matlab
19:30- 19:45 Preparation, interconnections
19:45-20:15 **Plenary Session** **Room 1 (PS11)** **Chair: D. Sotiropoulos** **Speaker: Jialin Cui and Bo-Wen Shen** **Title: Applying a Kernel PCA Method to Reveal Coexisting Attractors within a Generalized Lorenz Model**
20:15-20:45 **Plenary Session** **Room 1 (PS12)** **Chair: D. Sotiropoulos** **Speaker: J.P. Lebacque and M.M. Khoshyaran** **Title: Chaotic behavior of dynamical systems associated with dynamic traffic assignment in transportation**
20:45-21:10 **Room 1** **Closing Ceremony**
End of the Conference

Thursday, 22.10.2020	
Event link https://isast.webex.com/isast/onstage/g.php?MTID=e9a15151cc547aa341dfc8b10a56d0d71	
Eventnumber:	152 136 3414
Eventpassword:	cmsim2020
VideoAddress:	1521363414@isast.webex.com You can also dial 62.109.219.4 and enter your meeting number
Audioconference:	United Kingdom Toll +44-20-7660-8149 Show all global call-in numbers Access code: 1521363414

Friday, 23.10.2020	
Event link https://isast.webex.com/isast/onstage/g.php?MTID=eb3c01402c92b328dd23826e565d7633c	
Eventnumber:	1524013452
Eventpassword:	cmsim2020
VideoAddress:	1524013452@isast.webex.com You can also dial 62.109.219.4 and enter your meeting number
Audioconference:	United Kingdom Toll +44-20-7660-8149 Show all global call-in numbers Access code: 1524013452

Saturday, 24.10.2020	
Event link https://isast.webex.com/isast/onstage/g.php?MTID=ef201bd3fd35940d496f3058d1d3cd041	
Eventnumber:	1527895017
Eventpassword:	cmsim2020
VideoAddress:	1527895017@isast.webex.com You can also dial 62.109.219.4 and enter your meeting number
Audioconference:	United Kingdom Toll +44-20-7660-8149 Show all global call-in numbers Access code: 1527895017