

PROGRAM AT-A-GLANCE

27/09/2021		"IFAC CONFERENCE CHAOS 2021"
09.00-09.15		Opening Ceremony
09.15-10.00		Keynote: prof. Henk Nijmeijer " Synchronization requires sympathetic coupling "
COFFEE BREAK		
10.30-11.50		General Track - "Nonlinear Dynamics in Biological and Biomedical Systems"
12.00-13.00		General Track - "Applications of Nonlinear Dynamics and Chaos"
LUNCH BREAK		
14.30-15.15		Keynote: prof. Rodolphe Sepulchre " Spiking Control Systems "
15.15 - 16.15		General Track - "Synchronization of Nonlinear Systems" - Part I
COFFEE BREAK		
16.45 - 17.45		General Track - "Synchronization of Nonlinear Systems" - Part II
28/09/2021		"IFAC CONFERENCE CHAOS 2021"
9.30-10.30		General Track - "Modeling with Nonlinear Dynamics"
COFFEE BREAK		
11.00 - 13.00		General Track - "Nonlinear Dynamics in Robotic Systems"
LUNCH BREAK		
14.30 - 15.50		General Track - "Analysis, Control and Prediction of Nonlinear Systems"
COFFEE BREAK		
16.20 - 17.40		General Track - "Fractional and Integer Nonlinear Dynamical Systems"
29/09/2021		"JOINT EVENT CHAOS 2021 - SICC TALKS ON COMPLEXITY"
9.00-9.40		Keynote: prof Guanrong Chen " Optimal Synchronizability "
9.40 - 10.20		Keynote: dr. Stefano Boccaletti " Synchronization in structures beyond pairwise interactions "
10.20-11.00		Round Table

IFAC CONFERENCE CHAOS 2021

September 27th, 2021

09.00 – 09.15 Opening Ceremony

09.15 – 10.00 Keynote: Henk Nijmeijer, **Synchronization requires sympathetic coupling**

10.30 – 11.50 General track – **“Nonlinear Dynamics in Biological and Biomedical Systems”**

- Chiara Mocenni, Dario Madeo, Evolutionary Game Theoretic Insights on the SIRS Model of the COVID-19 Pandemic
- Zayneb Brari, Safya Belghith, A novel Machine Learning approach for epilepsy diagnosis using EEG signals based on Correlation Dimension
- Fadoua Tamtam, Amina Tourabi, Interpretive Structural Modeling of Supply Chain Leagility During COVID-19
- Ahmed Ojiemy Ojiemy, Fadhil Rahma Tahir, Hamzah Abdulkareem Abbood, Alsu hail Ghaida, A dynamic behavior of hyperglycemia model based on Reaction-Diffusion Cellular Nonlinear Networks (RD-CNN)

11.50 – 13.10 General track – **“Applications of Nonlinear Dynamics and Chaos”**

- Tatyana Alexeeva, Nikolay Kuznetsov, Timur Mokaev, Iuliia Polshchikova, Macroeconomic Model with Monetary and Fiscal Policy and Externality: Nonlinear dynamics, Optimization and Control
- Maide Bucolo, Arturo Buscarino, Luigi Fortuna, Carlo Famoso, Salvina Gagliano, Jump Resonance in Electromechanical Systems
- Thomaz F.F. De Anchieta, Saulo A.R. Santos, Bruno M. Brentan, Silvia Carpitella, Joaquin Izquierdo, Managing Expert Knowledge in Water Network Expansion Project Implementation
- Georges Sarafopoulos, Kosmas Papadopoulos, Complexity of a Bertrand duopoly game with homogeneous expectations, quadratic cost functions and chaos control

14.30 – 15.15 Keynote: Rodolphe Sepulchre, **Spiking control systems**

15.15 – 16.15 General track – **“Synchronization of Nonlinear Systems” - Part I**

- Branislav Rehak, Volodymyr Lynnyk, Synchronization of a network composed of stochastic Hindmarsh-Rose neurons
- Vera Smirnova, Anton V. Proskurnikov, Self-synchronization of unbalanced rotors and the swing equation
- Nicolas Augier, Madalena Chaves, Jean-Luc Gouze, Control for Synchronization of Bistable Piecewise Affine Genetic Regulatory Networks

16.45 – 17.45 General track – “Synchronization of Nonlinear Systems” - Part II

- Víctor Fernando García Rivera, Jonatan Pena Ramirez, The influence of individual natural frequency on the emergence of synchronous motion in coupled metronomes
- José Luis Echeausía Monroy, Luis Javier Ontanon, Jonatan Pena Ramirez, On Synchronization of Unidirectionally Coupled Multi-Scroll Systems: Dynamic vs Static Interconnections
- Victor Hugo Pereira Rodrigues, Tiago Roux Oliveira, Liu Hsu, Global Synchronization and Secure Communication Via Cascade Norm Observers and Equivalent Control

September 28th, 2021

09.30 – 10.30 General track – “Modeling with Nonlinear Dynamics”

- Alexandr Petukhov, Modelling the influence of RT and BBC on cognitive attitudes and psychophysiological indicators of individuals
- Ahmed Hunaish, Fadhil Rahma Tahir, Hamzah Abdulkareem Abbood, Hyperchaos from DTC Induction Motor Drive System
- Bingyi Liu, Toshiki Oguchi, Synchronization of Coupled Nonlinear Systems via Bidirectional Sampled-Data Couplings with Delay

11.00 – 13.00 General track – “Nonlinear Dynamics in Robotic Systems”

- Paolo Arena, Luca Patané, Salvatore Taffara, Pierfrancesco Sueri, A data-driven neural network model predictive steering controller for a bio-inspired quadruped robot
- Julio Andelfo Flórez Vargas, Luz Aida Vega Mantilla, Edgar N. Sanchez, Alexander G. Loukianov, Inducting Chaos on a Drone Network
- Fabrizia Auletta, Mario di Bernardo, Michael Richardson, Human-inspired strategies to solve complex joint tasks in multi agent systems
- Essia Added, Hassène Gritli, Safya Belghith, Additional Complex Behaviors, Bifurcations and Chaos, in the Passive Walk of the Compass-Type Bipedal Robot
- Farah Naser, Abbas, Hanadi A. Jaber A-Musawi, Mofeed Rashid, Basil H. Jasim, A Sperm-Based Autonomous Micro-Robot: First Step
- Rajiv Kumar Mishra, Hideaki Ishii, Dynamic Event-triggered Consensus Control of Discrete-time Linear Multi-agent Systems

14.30 – 15.30 General track - "Analysis, Control and Prediction of Nonlinear Systems"

- Matteo Sangiorgio, Fabio Dercole, Giorgio Guariso, Sensitivity of Chaotic Dynamics Prediction to Observation Noise
- Vera Smirnova, Anton V. Proskurnikov, Iurii Zgoda, The Sunflower Equation: Novel Stability Criteria
- Michael Ruderman, Convergent Dynamics of Optimal Nonlinear Damping Control

15.45 – 17.05 General track – “Fractional and Integer Nonlinear Dynamical Systems”

- Margarita Preobrazhenskaia, Antiphase Mode in a Pair of Mackey-Glass Type Generators with Two Delays
- Riccardo Caponetto, Enrico De Marco, Fabio Matera, Emanuela Privitera, M. Gabriella Xibilia, Preliminary analysis of the chaotic behavior in hydrogen electrochemical devices
- Chunxiao Yang, Ina Taralova, Jean Jacques Loiseau, Improving chaotic features of fractional chaotic maps
- Pedro PancoatI-Bortolotti, Antonio Costa, Rogerio Enriquez-Caldera, Jose Fermi Guerrero Castellanos, Maribel Tello-Bello, Monica Lopez-Hernandez, Design and Analysis of a new chaotic system inspired on Duffing

September 29th, 2021

09.00 – 11.00 Joint Event IFAC CHAOS 2021 - SICC talks on Complexity: “Complex networks: collective behavior and control”

09.00 – 09.40 Keynote: Guanrong Chen, **Optimal synchronizability**

09.40 – 10.20 Keynote: Stefano Boccaletti, **Synchronization in structures beyond pairwise interactions**

10.20 – 11.00 **Round Table**