

11th International Scientific Conference on Physics and Control (PhysCon 2024)
Kadir Has University, Istanbul, September 9-12, 2024
List of All Contributions

Keynote Talks

Monday	13:00	Keynote 1	Henrik J. Jensen	Self-Organised Criticality and Control
Tuesday	13:00	Keynote 2	Marc Timme	Fluctuation-Responses and Tipping in Strongly Perturbed Nonlinear Systems
Wednesday	13:00	Keynote 3	Yamir Moreno	Network Epidemiology: from modeling diseases to their control
Thursday	13:00	Keynote 4	Michael Small	Choosing Embedding Lag and Why it Matters

Lectures

Tuesday	9:30	Lecture 1	Eckehard Schöll	Nonequilibrium Phase Transitions and Nucleation Phenomena in Synchronizing Networks (Dedicated to the memory of Hermann Haken, 12.07.1927 – 14.08.2024)
Tuesday	10:30	Lecture 2	Alexander Fradkov	Cybernetical Neuroscience
Thursday	Cancelled	Lecture 3	Jürgen Kurths	Stability of Power Grids Concerning Strong Perturbations – Tropical Cyclones and Increasing Resilience

Invited Talks

Monday	14:00	Invited Talk 1	Thomas Stemler	statFEM -- dealing with imperfect models in a statistical learning framework
Tuesday	14:00	Invited Talk 2	Thomas Peron	Effects of clustering heterogeneity on the spectral density of sparse networks
Wednesday	14:00	Invited Talk 3	Hildegard Meyer-Ortmanns	Controlling the mean time to extinction for populations of bacteria
Thursday	14:00	Invited Talk 4	Jeff Moehlis	Controlling Populations of Neural Oscillators

MiniSymposia Sessions

Monday	16:00	MiniSymposium 1.a	Title Burçin Ünlü Gökler Arpaç	Physics of Nonequilibrium and Complex Biological Systems - Part 1 Label-Free Characterization of Exosomes Using Raman Spectroscopy Microtubule Dynamics and Motor Protein Function: Stochastic and Langevin Dynamics Perspectives
Monday	16:00	MiniSymposium 2.a	Title Eckehard Schöll Istvan Z. Kiss	Synchronization Phenomena in Interacting Dynamical Systems: Theory and Applications - Part 1 Interplay of Synchronization and Cortical Input in Models of Cortical Networks Pinning Control of Synchronized Oscillatory Networks: Stability Hyperbolas and Relocating Influential Nodes
Tuesday	15:30	MiniSymposium 3.a	Title Ralph Andrzejak Oleh Omel'chenko	Control of Collective Dynamics and Partial Synchronization Patterns in Complex Networks - Part 1 Unbiased Quantification of the Degree of Partial Synchronization Phase Reduction Explains Chimera Shape: When Multi-Body Interaction Matters
Wednesday	9:30	MiniSymposium 1.b	Title Kamyar Roudakian Onur Pusuluk	Physics of Nonequilibrium and Complex Biological Systems - Part 2 Information Transfer as an Evolutionary Feed for Emergence of Critical Brain Network Harnessing Classical and Quantum Correlations: From Thermodynamic Laws to Enhanced Biochemical
Wednesday	9:30	MiniSymposium 3.b	Title Galina Strelkova Frederico Costa	Control of Collective Dynamics and Partial Synchronization Patterns in Complex Networks - Part 2 Lévy Noise Controlled Dynamics of Neural Networks Targeting Cellular Bioelectrical Differences with Non-Thermal Systemic Electromagnetic Fields in the Human Body
Wednesday	10:30	MiniSymposium 2.b	Title Zeray Hagos Gebrezabher Bruno Boaretto	Synchronization Phenomena in Interacting Dynamical Systems: Theory and Applications - Part 2 Emergence of Hypernetworks via Higher-Order Phase Reduction from Weakly Coupled Oscillator Networks Control of Synchronization Due to Ion Conductance Variations: A Pathway to Synchronization in Neuronal Networks
Wednesday	15:00	MiniSymposium 4	Title Michał Fedorowicz Wei Hao Tey Konstantinos Kourliouros	Attractors of Random Dynamical Systems with Bounded Noise: A Control Theoretic Approach Regularity of Boundaries of Attractors for Linear Differential Equations with Bounded Noise Bifurcations of the Henon Map with Additive Bounded Noise Geometric Theory of Random Dynamical Systems with Bounded Noise: Boundaries of Attractors and Pontryagin's Maximum Principle
Wednesday	15:00	MiniSymposium 5	Title Xiaozheng Fu Alexander Fradkov Sergei Plotnikov	Estimation and Optimization in Networks Asymptotic Convergence of a Continuous-time Decentralized Online Estimation Algorithm with the Additive Communication Noises Parameter Estimation of FitzHugh-Nagumo Neural Networks Based on the Speed-Gradient and Filtering Adaptive Parameter Estimation for a Class of Neural Mass Networks

Contributed Talks

Monday	15:00	Contributed Talks 1.a	Danila Semenov Alexander Aleksandrov	Synchronization Conditions of Disturbed Nonlinear Dynamical Networks with Delayed Coupling Based on Passification Method Stabilization of Nonlinear Mechanical Systems via Delayed Feedback
Monday	15:00	Contributed Talks 1.b	Alexandr Elsakov Cutberto Romero-Meléndez	On Asymptotic Properties of Indirect Control Systems with Periodic Nonlinearities Dissipativity and Turnpike Property in a Controlled Stochastic Lotka-Volterra Model with Lévy Jumps
Tuesday	15:00	Contributed Talks 2.a	Margarita Kovaleva	Breathers Propagation in the Granular Locally-Resonant Chains
Tuesday	15:00	Contributed Talks 2.b	Aliya Imgazieva Tatiana Bogatenko	Chain Control of Nonstationary Networks Plant Dynamics Peculiarities of Three Coupled Hodgkin-Huxley Neurons
Tuesday	16:00	Contributed Talks 3	Andrey Ankilov	Mathematical Models of System of Control of Pressure Variation in Combustion Chambers of Engines
Wednesday	10:30	Contributed Talks 4	Sergey Borisenok Bekzod Mirzakabilov	Effective Feedback Control Algorithms for Nitrogen-Vacancy-Cavity Quantum Sensing Flutter of the Transition Process of the Hereditary Deformable Elongated Plate
Thursday	10:00	Contributed Talks 5.a	Valeri Makarov Margarita Simonyan Denis Goldobin	Assessing the Irregularity of Multidimensional Biological Recording Local Nocturnal EEG Activity of Healthy People Depending on Chronotype Regimes of Global Oscillations Induced by Discrete Synaptic Events in Balanced Neural Networks
Thursday	10:00	Contributed Talks 5.b	Erbil Can Artun Andrea Lama Nikita V. Barabash	Spin-Glass Sponges: Spin Glasses with Fractal Surfaces Shepherding in Complex Systems: Integrating Control Theory and Statistical Physics Bifurcations of Smale Horseshoes' chains in a Double-Scroll

Special Talks

Wednesday	16:30	Special Talk 1	Nihat Berker	The Competition Between Chaotic Spin-Glass Phase and Entropic Liquid-Crystal Phase in a Dirty Magnet
Thursday	15:00	Special Talk 2	Sondan Durukanoğlu Feyiz	Uninterrupted Motion of Molecular Wheels on Cu Metal Surfaces