

Monday 22 July				
08.45 - 09.15	Registration			
	<b>Room A</b>			<b>Room B</b>
09.15 - 09.30	Welcome			
	Plenary Speakers (Chair: Riccardo Meucci)			
09.30 - 10.15	<u>S. Boccaletti</u> The transition to synchronization of networked dynamical systems			
10.15 - 11.00	<u>G. Biroli</u> Generative AI and Diffusion Models: A Statistical Physics Analysis			
11.00 - 11.20	Coffee break			
	Machine learning (Chair: Lorenzo Buffoni)			Engineering methods and applications I (Chair: Giacomo Innocenti)
11.20 - 11.40	<u>M. Negri</u> Self-attention as an attractor network: pseudo-memories without backpropagation	11.20 - 11.40	<u>C. Hajiyev</u> GNSS-Based Relative Navigation for Two Satellite Formation Under Uncertainty Using Three-EKF Architecture	
11.40 - 12.00	<u>E. Ventura</u> Learning and Unlearning: using physics to bridge classification, memory, and generative modeling in biologically plausible neural networks.	11.40 - 12.00	<u>K. Tamersit</u> Ultrasensitive Gas Nanosensor Based on Doping-less Carbon Nanotube Tunnel Field-Effect Transistor with a Sensitive Drain-Gate	
12.00 - 12.20	<u>L. Chicchi</u> Complex Recurrent Spectral Network	12.00 - 12.20	<u>M. Vela</u> Nunez Streamlining the Testing for the PLATO Instrument Control Unit Startup of the Application Software Post-Boot Execution	
12.20 - 12.40	<u>G. Peri</u> Spectral Parameterization of Residual Neural Networks	12.20 - 12.40	<u>P. Corsi</u> Ship Manoeuvrability Modeling for Autonomous Navigation	
12.40 - 13.00	<u>R. Pacelli</u> Spectral Parameterization in Fully Connected Networks: Understanding Optimal Size through Analytical Approaches	12.40 - 13.00	<u>C. I. Kumar</u> A Radiation-Hardened Double Node Upset Latch Design for Nanoscale CMOS Technologies	
13.00 - 14.00	Lunch			
	Complex networks I (Chair: Di Patti Francesca)			Data analysis (Chair: Massimo Materassi)
14.00 - 14.20	<u>R. Viana</u> Synchronization of phase oscillators with diffusion-mediated coupling	14.00 - 14.20	<u>G. Chesì</u> On D-Stability Analysis via LMI-Based Nonsingularity Detection	
14.20 - 14.40	<u>L. Giambagli</u> Global Synchronization of Simplicial and Cell Complexes	14.20 - 14.40	<u>O. Kane</u> Exploring Imputation Techniques for Climatic Time Series Data in the Sudanian Zone, West Africa	
14.40 - 15.00	<u>C. Tomaselli</u> Leveraging eigenvector centrality to control multiconsensus in multi-agent systems	14.40 - 15.00	<u>H. Chen</u> Detection of anomalous samples based on automatic thresholds	
15.00 - 15.20	<u>N. K. Aidara</u> A comprehensive Evaluation of Community Detection algorithms on different types of network	15.00 - 15.20	<u>C. Wolff</u> Comparative Network Analysis of Migration and Commuting in Rhineland-Palatinate: 2012-2021	
15.20 - 15.40	Coffee break			
	<b>Room Arcchi (INO)</b>			<b>Room B</b>
	Dynamics of neural networks: from single neuron to collective behaviours (Chair: Simona Olmi)			Engineering methods and applications II (Chair: Giacomo Innocenti)
15.40 - 16.00	<u>S. Boccaletti</u> & <u>R. Meucci</u> & <u>F.S. Cataliotti</u> A tribute in memory of Prof. Tito Arcchi	15.40 - 16.00	<u>R. Alesii</u> Liquid Identification through SDR: System Design and Performance Analysis	
16.00 - 16.20	<u>A. Torcini</u> Is the cortical dynamics ergodic?	16.00 - 16.20	<u>K. Tamersit</u> Negative Capacitance Junctionless Graphene Nanoribbon Tunneling FET as DNA Nanosensor: A Quantum Simulation-Based Proposal	
16.20 - 16.40	<u>L. Iannello</u> Nonlinear Time-series Analysis of MEA Recordings in cultured neuronal networks	16.20 - 16.40	<u>L. Gautam</u> Error Detecting and Correcting Master Slave Flip Flop design in NTV Regime	
16.40 - 17.00	<u>P. De Lellis</u> Early warning signals for psychopathology	16.40 - 17.00	<u>K. Singh</u> DFEA-Net: Dual-branch Feature Extraction and Adaptation Network for Object Detection in Low-light Environments	
17.00 - 17.20	<u>E. Russo</u> Integration of rate and phase codes by hippocampal cell-assemblies supports flexible encoding of spatiotemporal context	17.00 - 17.20	<u>S. Upadhyaya</u> Optimal Control of Non-linear Epidemiological Model for Epidemic Preparedness and Response	

17.20 - 17.40	<u>P. Bonifazi</u> Linking hubness, embryonic neurogenesis, transcriptomics and diseases in human brain networks			
17.40 - 18.00	<u>A. Scaglione</u> Group ICA of wide-field calcium imaging data reveals the retrosplenial cortex as a major contributor to cortical activity during anesthesia			
<b>Tuesday 23 July</b>				
<b>Room A</b>			<b>Room B</b>	
<b>Plenary Speakers (Chair: Francesca Di Patti)</b>				
09.30 - 10.15	<u>L. V. Gambuzza</u> Theory vs experiments: synchronization and cooperative behaviour in micro robots team			
10.15 - 11.00	<u>M. Mattia</u> Population dynamics for finite-size networks of spiking neurons			
11.00 - 11.20	<b>Coffee break</b>			
	Synchronization of complex networks: from power grid to multibody interactions (Chair: Simona Olmi)			Nonlinear dynamics I (Chair: Massimo Materassi)
11.20 - 11.40	<u>E. Crisostomi</u> Synchronization of interconnected microgrids		11.20 - 11.40	<u>A. Venkatachalam</u> Discovering the governing equations of a chaotic circuit
11.40 - 12.00	<u>D. Febbe</u> Chaos and Synchronization in the UJT relaxation oscillator		11.40 - 12.00	<u>E. Poncevicius</u> Forecasting Container Throughput at Klaipėda Port Terminal: A Comparative Study Using Linear and Multi-Criteria Methods.
12.00 - 12.20	<u>P. De Lellis</u> Modeling and control of opinion dynamics in the presence of higher-order interactions		12.00 - 12.20	<u>S. Torres</u> Analysis of Collaborative Work through Conversational Patterns
12.20 - 12.40	<u>M. Lodi</u> A comparative analysis of different virtual inertia controllers in power grids with renewable energy sources: effect on the stability		12.20 - 12.40	<u>F. Schmitt</u> Stochastic simulations of non-stationary multifractal processes: application to turbulence
12.40 - 13.40	<b>Lunch</b>			
	Machine Learning (Applications) (Chair: Lorenzo Buffoni)			Complex networks II (Chair: Raffaele Marino)
13.40 - 14.00	<u>C. Condorelli</u> Prediction of antimicrobial resistance of <i>Klebsiella pneumoniae</i> from genomic data through machine learning		13.40 - 14.00	<u>I. M. Diop</u> Assessing Centrality Measures as Attack and Defense Strategies in the Air Transportation Network
14.00 - 14.20	<u>A. Yassin</u> Network Backbone Extraction using Link Prediction		14.00 - 14.20	<u>K. Kovalenko</u> Why Are There Six Degrees of Separation in a Social Network?
14.20 - 14.40	<u>A. Lorusso</u> Smart Restoration: AI for Historic Facades		14.20 - 14.40	<u>N. K. Aidara</u> Detecting Influential Nodes with Centrality Measures via Random Forest Approach in Social Networks
14.40 - 15.00	<u>R. Pillai</u> Investigating speech as a standalone modality to detect dementia using deep learning techniques		14.40 - 15.00	<u>N. Mellor</u> First Observations of Criticality from Ca <sup>2+</sup> Avalanches in GBM Networks in vitro
15.00 - 15.20	<u>N. K. Aidara</u> A Comparative Analysis of Machine Learning Algorithms for Detection of Node Centrality in Complex Networks		15.00 - 15.20	<u>A. Corso</u> A generative model for spatial complex systems: power grid and brain network applications
15.20 - 15.40	<b>Coffee break</b>			
	Nonlinear dynamics II (Chair: Francesca Di Patti)			
15.40 - 16.00	<u>E. Cutuli</u> Cell dynamical interactions under hydrodynamic stimuli in microchannels			
16.00 - 16.20	<u>M. Bucolo</u> Low-cost acusto-mechanical stimulation to tune particle displacement inside microchannels			
16.20 - 16.40	<u>R. Concas</u> Electronic circuit for chaos and synchronisation in laser physics			
16.40 - 17.00	<u>B. Donelli</u> Orthogonality catastrophe with incompatible observables: dynamical scaling and thermodynamics			

19.30 - 22.00	Social Dinner			
<b>Wednesday 24 July</b>				
	<b>Room A</b>			<b>Room B</b>
	<b>Chaos and complexity across neural and nonlinear electronic systems I (Chair: Ludovico Minati)</b>			<b>Remote monitoring (Chair Riccardo Meucci)</b>
09.20 - 09.40	<u>M. Frasca</u> Reconstructing the topology of pairwise and higher-order interactions of coupled dynamical systems		09.20 - 09.40	<u>G. Lacanna</u> Holographic and seismic comparative modal analysis on Radicofani fortress
09.40-10.00	<u>C. Li</u> Geometry and Distribution Control of Complex Oscillation in Memristive Circuits		09.40-10.00	<u>D. Spina</u> Continuous Structural Health Monitoring of Civil Structures from Ambient Noise Analysis: The OSS SHM Project
10.00 - 10.20	<u>A. de Candia</u> Models of critical neural dynamics and inhibition based on neon lamps		10.00 - 10.20	<u>M. Betti</u> Analysis of 35 years of monitoring data of the Dome of Santa Maria del Fiore in Florence
10. 20 - 10.40	<u>L. Faes</u> Dissecting the complexity of physiological and brain network systems through multivariate information measures		10. 20 - 10.40	<u>M. Locatelli</u> SWIR digital holography and imaging through smoke and flames
10.40 - 11.00	Coffee break			
	<b>Chaos and complexity across neural and nonlinear electronic systems II (Chair: Ludovico Minati)</b>			<b>Laser dynamics and optics (Chair: Riccardo Meucci)</b>
11.00 - 11.20	<u>P. Oswiecimka</u> Multifractality in Electronic Circuits and Beyond: Exploring Physical Systems		11.00 - 11.20	<u>J. Roversi</u> Quantum information transfer with high fidelity using entangled states between connected microtoroidal cavities.
11. 20 - 11.40	<u>S. Hourj</u> On Constructing Frequency-Multiplexed Networks based on Nonlinear MEMS Devices		11. 20 - 11.40	<u>R. Zard</u> Minimal universal laser model is analogous to a memristor
11. 40 - 12. 00	<u>L. Ricci</u> Estimating connectivity strength via time scales of observability		11. 40 - 12. 00	<u>G. Nunzi Conti</u> Optomechanical Parametric Oscillations in PhoXonic Cavities: applications in flow cytometry
12.00 - 12.20	<u>L. Minati</u> Across neurons and silicon: some ideas about the relationship between unusual electronic circuits and neuroscience		12.00 - 12.20	<u>K. al Naimiee</u> Random encryption process in optical fiber link
12.20 - 13.20	Lunch			