Workshop on Unconventional Computing – Erice, 7 – 13 April 2026

Program

Day	Time	Title	Speaker
Tuesday 7	21:30-24:00	Welcome and get together (Marsala Room)	
Wednesday 8 **Introduction to UC** *(M. Fanciulli)*	8:45-9:00	Introduction to the Workshop	**M. Fanciulli**
	9:00-10:00	New Computational Models for Novel Physical Devices	**S. Stepney**
	10:00-10:30	Coffee break	
	10:30-11:30	Interrogating the brain with neuroelectronics: from synapses to neural circuit oscillators	**S. Vassanelli**
	11:30-12:30	Unconventional computing with novel devices and circuits, from concept to prototyping	**V. Bragaglia**
	12:30-14:30	Lunch	
NANOELECTRONICS I	15:00-16:00	Thermal aspects of memristive devices: from device design to thermal computing	**S. Menzel**
(K. Hofmann)	16:00-17:00	Emerging Memory Integration for Energy-Efficient Edge Computing	**E. Covi**
	17:00-17:30	Tea Break	
	17:30-18:30	Oxide memristors as dynamical elements for unconventional computing	**S. Spiga**
	19:30	Dinner	
Thursday 9 **NANOELECTRONICS II** *(V. Bragaglia)* *(W.v.d. Wiel)*	9:00-9:30	Synaptic nonlinear elements for Kolmogorv Arnold Networks	**M. Fanciulli**
	9:30-10:00	Precision Polymer Doping: a toolkit to control Si electronic properties	M. Perego
	10:00-10:30	Doping of Ultra-thin Si films: Exploring the Quantum world	A. Pulici
	10:30-11:00	Coffee Break	
	11:00-12:00	Nonlinear Computing in Reconfigurable Nonlinear-Processing Units	**W. v d. Wiel**
	12:00-13:00	Oscillator-based-ising machines (electronically based)	**K. Hofmann**
	13:00-15:00	Lunch	
	15:00-16:00	Nonlinear Heterogeneity in physical learning networks	**J. C. Gartside**
	16:00-16:30	Self-Contrastive Forward-Forward Learning for Few-Shot Training of Deeply Nonlinear Neuromorphic Hardware	X. Chen
	16:30-17:00	The Effect of HZO Nanolaminates on BEOL-Compatible WO_3-Based Ferroelectric Devices	E. Zaccaria
	17:00-17:30	Proton Radiation-Hardened HfZrO2 Ferroelectric Memory via WOx Interlayer Engineering for Space Applications	E. Kim
	17:30-19:30	Tea break and POSTER SESSION	

	19:30	Dinner	
Friday 10 **SPINTRONICS** *(J.C. Gartside)*	9:00-10:00	Spintronic neuromorphic computing with frequency-selective synapses	**J. Grollier**
	10:00-10:30	Coffee Break	
	10:30-11:30	Ising Machines Based on Spin Hall Nano-Oscillators, Spin Waves, and Acoustic Waves	**J. Åkerman**
	11:30-12:30	Networking Stochastic, Non-linear and Dynamic Spintronic Devices	**T. Hayward**
	12:30-13:00	Training the topology of sparse spintronic networks	K. Mirahi
	13:00-14:30	Lunch	
NANOELECTRONICS III *(T. Hayward)*	14:30-15:30	Memristive nanowire networks as dynamical systems for computing	**G. Milano**
	15:30-16:00	Multiterminal characterization of neuromorphic nanowire networks spatiotemporal dynamics	F. Michieletti
	16:00-16:30	RCbench: a unified framework for benchmarking reservoir computing systems	D. Pilati
	16:30-17:00	Tea Break	
	17:00-17:30	Equilibrium Propagation for Non-Conservative Systems	D. Abeele Vanden
	17:30-18:00	SiOx Nano Oscillator-Based Probabilistic Bit for Solving Complex Optimization Problems	J. Kim
	19:30	**SOCIAL DINNER**	
Saturday 11 **CHEMICAL** *(G. Milano)*	9:00-10:00	Computing with reconfigurable arrays of picoliter chemical oscillators	**H. Wolf**
	10:00-10:30	Coffee Break	
	10:30-11:00	Electrochemically Programmable Chemical Oscillator Networks for Ultra-Low-Power Computing and Optimization	S. Agostini
	11:30-12:00	Backpropagation as Physical Relaxation: Exact Gradients in Finite Time	A. Scurria
	12:00-12:30	Volatile electrochemical metallization (ECM) cells for spiking neuron applications	J. Rasbach
	12:30-14:15	Lunch	
	14:15-20:00	Excursion	
	20:00	Dinner	
Sunday 12 **APPLICATIONS/QUANTUM** *(J. Grollier)*	9:30-10:00	Intersection of AI and Quantum: the dawn of a new algorithmic era	**V. Bragaglia**
	10:00-10:30	Noise-aware AI subroutines for hybrid quantum-classical algorithms	J. Schuhmacher
	10:30-11:00	Coffee Break	
	11:00-12:00	Making Music with Quantum Computing	**E. Miranda**
	12:00-14:30	Lunch	

PHOTONIC UC *(B. Offrein)*	14:30-15:30	Opportunities for electronic and photonic unconventional computing approaches in AI systems	**B. Offrein**
	15:30-16:00	The role of photon (in)distinguishability in bosonic computational advantage	B. Butler
	16:00-17:00	Phase Change Memory: a technology to enhance computation at the edge	**A. Redaelli**
	17:00-17.30	Tea Break	
	17:30-18:30	Open discussion on the outlook for UC	**S. Stepney**
	18:30-18:45	Closing	**M. Fanciulli**
	19:30	Dinner	
Monday 13 *(S. Stepney)*	9:00-9:50	Free	
	9:50-10:40	Free	
	10:40-11:10	Free	
	12:00-14:00	Lunch- Departure	

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