



Euromech Colloquium 660

“Hyperfunctional Metamaterials”

16 - 18 September 2026, Cagliari, Italy

**EUROPEAN
MECHANICS
SOCIETY**



UNICA

**UNIVERSITÀ
DEGLI STUDI
DI CAGLIARI**

Chair:**Lorenzo Morini**

Department of Mechanical, Chemical and Materials Engineering, University of Cagliari, via Marengo 2, 09123 Cagliari, Italy.

Co-chairs:**Bryn Davies**

Mathematics Institute, University of Warwick,
Coventry CV4 7AL, UK.

Georgios Theocharis

Laboratoire d'Acoustique de l'Université du Maine,
Avenue Olivier Messiaen, 72085 France.

Local organizing committee:**Michele Brun**

Department of Mechanical, Chemical and Materials Engineering, University of Cagliari, via Marengo 2, 09123 Cagliari, Italy.

Giorgio Carta

Department of Mechanical, Chemical and Materials Engineering, University of Cagliari, via Marengo 2, 09123 Cagliari, Italy.

Timetable

Wednesday 16 September 2026	
Chairs: Lorenzo Morini, Giorgio Carta	
08:45-09:15	Registration
09:15-09:30	Opening
09:30-10:15	Computing with Physical Bits (Keynote) Martin van Hecke (Leiden University and AMOLF, The Netherlands)
10:15-10:40	Mechanically reconfigurable topological metamaterials: from curvature-tuned edge modes to strain-controlled auxetic waveguides Federico Bosia (Politecnico di Torino, Italy)
10:40-11:10	Coffee Break
11:10-11:35	Quasiperiodic waveguides: periodic approximants, super band gaps and fractal rainbow trapping Bryn Davies (University of Warwick, UK)
11:35-12:00	Tailoring elastic and acoustic dispersion relations using Voronoi diagrams Vinicius Dal Poggetto (Universidad Politecnica de Valencia, Spain)
12:00-12:25	Wave propagation in 1D and 2D quasi-periodic lattices Marco Moscatelli (Sorbonne Université, France)
12:25-12:50	Flexural Wave Scattering by Finite-Section Pillars on Thin Plates Mario Lazaro Navarro (Universidad Politecnica de Valencia, Spain)
12:50-14:25	Lunch
14:25-14:50	Controlling leaky waves in Fluid-Loaded Metamaterial with Space and Time Modulation Emanuele Riva (Politecnico di Milano, Italy)
14:50-15:15	Experimental Investigation of Space-Time Modulated Piezoelectric Phononic Crystals for Advanced Wave Control Florian Allein (University of Lille, France)
15:15-15:40	Parametric instability of a hyperfunctional string Maxime Lanoy (LAUM-CNRS France)
15:40-16:10	Coffee Break
16:10-16:35	Data-driven shape optimisation of mechanical metamaterials through material redistribution Federico Bosi (University College London, UK and SUPSI, Switzerland)
16:35-17:00	Cascaded snap-back mechanism for programmable multifunctional metamaterials Sidharth Beniwal (University of Groningen, The Netherlands)
Thursday 17 September 2026	
Chairs: Bryn Davies, Michele Brun	
09:30-10:15	Time- and Space-Time-Modulated Interfaces for Acoustic and Water Waves (Keynote) Agnes Maurel (Institute Langevin, France)
10:15-10:40	Nonreciprocal elastic waves induced by spatial and temporal interfaces in space-time modulated media Antonio Palermo (University of Bologna, Italy)
10:40-11:10	Coffee Break
11:10-11:35	Achieving Non-reciprocal Wave Propagation in a Discrete Mechanical Waveguide by Exploiting Material Nonlinearities and Unilateral Constraint Pietro Maria Santucci (SISSA, Italy)
11:35-12:00	Nonlinear traveling waves in materials with nonreciprocal stiffness

	Behrooz Yousefzadeh (Concordia University, Canada)
12:00-12:25	Effective properties of non-Hermitian lattices at an exceptional point Alice Vanel (Institute Fresnel-CNRS, France)
12:25-12:50	Programming Mechanical States with Sound: Topological Kink Control in Metamaterials Georgios Theocharis (LAUM-CNRS France)
12:50-14:25	Lunch
14:25-14:50	Dynamic Green's functions for structured systems with frontiers possessing contrasting periodicity and material properties Michael Nieves (Keele University, UK)
14:50-15:15	Canonical structures based on quasi-crystalline sequences: periodicity of the spectrum, topological features and nonlinear effects Massimiliano Gei (University of Trieste, Italy)
15:15-15:40	Smoothing Quasiperiodicity: A Controlled Transition from Step-Like Sturmian to Harper Modulations Lluís Garcia Raffi (Universitat Politècnica de València, Spain)
15:40-16:10	Coffee Break
16:10-16:35	Wave scattering by a random micro-structured material Laure Giovangigli (ENSTA-POEMS, France)
16:35-17:00	Asymptotic Prediction of Dispersion Curves in Weakly Disordered Beam Lattices and Honeycomb Sandwich Panels Regis Cottreau (LMA-CNRS, France)
20:00-22:30	Social Dinner
Friday 18 September 2026	
Chairs: Georgios Theocharis, Lorenzo Morini	
09:30-10:15	Wave scattering and dynamics in acoustic and elastic media with spatiotemporally modulated interfaces (Keynote) Michael Haberman (University of Texas at Austin, USA)
10:15-10:40	Wave interaction in a Continuously Deforming Elastic Medium Fabio Nistri (Politecnico di Torino, Italy)
10:40-11:10	Coffee Break
11:10-11:35	Cloaking flexural-gravity waves in an anisotropic plate floating on shallow water Malte Peter (University of Augsburg, Germany)
11:35-12:00	Thermally Bianisotropic Metamaterials Induced by Spatial Asymmetry Gal Shmuel (Technion Haifa, Israel)
12:00-12:25	Engineering Localized Topological States for Advanced Microscale Sensing Jacopo De Ponti (Politecnico di Milano, Italy)
12:25-12:50	Topological characterization of bi-phase flexural waveguides through an exact mapping to the SSH model Giorgio Carta (University of Cagliari, Italy)
12:50-14:30	Lunch and Closure