



L4DReaMS
Laboratory for the Design of
Reconfigurable Metamaterials
and Structures



erc
European Research Council
Established by the European Commission

MINI - WORKSHOP ON

INTELLIGENT MECHANICS

FOR SOFT AND HETEROGENEOUS SYSTEMS

THREE TALKS • INTERACTIONS • COLLABORATION

S-FOAM

Self-Foldable Origami Architected Metamaterials

INSTABILITIES LAB




erc
European Research Council
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BEYOND



JULY 28, 2026
Ning An
Sichuan University, China

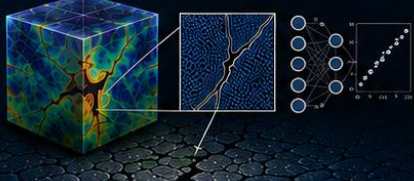
“Programming and Predicting
Soft Pneumatic Actuators:
From Metamaterial Skins
to Digital Twins”





JULY 28, 2026
Roque Luiz da Silva Pitangueira
Federal University of Minas Gerais, Brazil

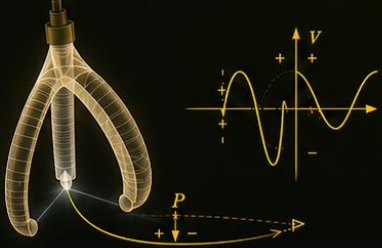
“Bridging Scales and Methods
in Heterogeneity and Fracture Mechanics:
from Higher-Order Continua and
Adaptive FEM-SPIM to
Machine Learning Surrogates”





JULY 28, 2026
Prakhar Gupta
IIT Hyderabad, India

“A pre-strained flexoelectric
rod theory for soft
robotic grippers”





DATE
July 28, 2026



LOCATION
DICAM, University
of Trento

INTERACTIONS • DISCUSSIONS • COLLABORATION

Bringing together participants, PhD students and the
research team of the University of Trento to exchange ideas,
share insights and build new collaborations at the
intersection of mechanics, modeling and intelligent systems.





**UNIVERSITY
OF TRENTO**

ADVANCING KNOWLEDGE.
INSPIRING SOLUTIONS.

Room 2R

Dipartimento di Ingegneria Civile, Ambientale e Meccanica

Via Mesiano 77 – 38123 Trento

Mini-Workshop on Intelligent Mechanics for Soft and Heterogeneous Systems

The mini-workshop brings together recent advances in soft robotics, multiscale mechanics, computational fracture, and data-driven modelling. The three invited talks will explore programmable pneumatic actuators and digital twins, advanced continuum and numerical methods for heterogeneous and fractured materials, and flexoelectric rod theories for soft robotic grippers.

The event is designed to foster scientific exchange through discussion sessions and informal interactions among the speakers, PhD students, participants, and the research team of the University of Trento. Particular emphasis will be placed on identifying common modelling challenges, computational strategies, and opportunities for future interdisciplinary collaboration.

The workshop is organized by Davide Bigoni, Francesco Dal Corso, Diego Misseroni, Andrea Piccolroaz, and Roberta Springhetti, within the frameworks of the ERC AdG Beyond (Grant agreement No. ERC-ADG-2021-101052956-BEYOND) and ERC CoG Sfoam (Grant agreement No. HE GA 101086644 S-FOAM).



PROGRAM

10:00-10:55 Ning An (Sichuan University, China) "Programming and Predicting Soft Pneumatic Actuators: From Metamaterial Skins to Digital Twins".

10:55-11:55 Roque Luiz da Silva Pitangueira (Federal University of Minas Gerais, Brazil) "Bridging Scales and Methods in Heterogeneity and Fracture Mechanics: from Higher-Order Continua and Adaptive FEM-SPIM to Machine Learning Surrogates".

11:55-12:55 Prakhar Gupta (IIT Hyderabad, India) "A pre-strained flexoelectric rod theory for soft robotic grippers".

13:00 – 14:30 Free time for lunch.

14:30-16:30 Open discussion with Professors An, Bigoni, Dal Corso, Gupta, Misseroni, Piccolroaz, Pitangueira, Springhetti.