

MECANANO GENERAL MEETING #4

Scientific Programme

Three days of invited and contributed talks, poster discussions and networking sessions for the mechanics of matter at the nano-scale.

27–29 April 2026

Rome, Italy

Invited talks · Contributed talks · Posters

PROGRAMME AT A GLANCE

**Monday afternoon ·
Tuesday full day ·
Wednesday closing
sessions**

QUICK ACCESS

Venue

Monday

Tuesday

Wednesday

Download PDF

Venue

The meeting will take place at the Department of Civil Engineering, Computer Science and Aeronautical Technologies, Università degli Studi Roma Tre.

**Via Vito Volterra, 62, Roma (RM), 00144 ·
Dipartimento di Ingegneria Civile, Informatica e
delle Tecnologie aeronautiche · Università degli
Studi Roma Tre**

MAP & ACCESS

Use the official location link for navigation and sharing with participants.

Open venue in Google
Maps

All times are shown in local time. Minor adjustments to the running order may still occur.

Monday, 27 April 2026

13:00	Welcome reception (60 min)
14:00	Opening remarks Edoardo Rossi, Marco Sebastiani 10 min
14:10	ADVANCED NANOINDENTATION Invited Talk Marco Sebastiani High-speed nanoindentation mapping · 30 min
14:40	ADVANCED NANOINDENTATION Contributed talk 1 Wheeler Jeffrey M. Correlated Mechanical Microscopy for Determining the Influence of Deformation and Texture on Local Mechanical Properties · 20 min
15:00	ADVANCED NANOINDENTATION Contributed talk 2 Benoit Merle High Strain Rate Nanoindentation: Recent Advances and Applications · 20 min
15:20	ADVANCED NANOINDENTATION Contributed talk 3 Uluca Ahmed A dynamic analysis of size- and scale-dependent static friction in spherical contacts · 20 min
15:40	Coffee Break (30 min)
16:10	MICROSTRUCTURE-DRIVEN SMALL-SCALE MECHANICS Invited Talk Verena Maier-Kiener Linking Nanoscale Phase Transformations to High-Temperature Mechanical Behavior · 30 min
16:40	MICROSTRUCTURE-DRIVEN SMALL-SCALE MECHANICS Contributed talk 4

Chmielewska Julia

Room Temperature Ductility and Elevated Temperature Strength in Hf–Mo–Nb–Ti Refractory Multi Principal Element Alloys · 20 min

17:00

MICROSTRUCTURE-DRIVEN SMALL-SCALE MECHANICS

Contributed talk 5

Divya Sri Bandla

Decoupling grain boundary sliding from its accommodation mechanisms: Insights from high temperature micropillar compression · 20 min

17:20

MICROSTRUCTURE-DRIVEN SMALL-SCALE MECHANICS

Contributed talk 6

Szebesczyk Hanna

Application of high-throughput materials science methods for rapid screening of ultra-strong light-weight aluminium alloys · 20 min

17:40

MICROSTRUCTURE-DRIVEN SMALL-SCALE MECHANICS

Contributed talk 7

Maria Watroba

Electrochemical Microfabrication of Zinc Architectures: From Microstructure Control to Mechanical Performance · 20 min

18:00

Closing remarks

Edoardo Rossi, Marco Sebastiani

10 min

Tuesday, 28 April 2026

09:00	Welcome reception (10 min)
09:10	NANOSCALE MECHANICAL BEHAVIOR: FATIGUE, INDENTATION & TRIBOLOGY Invited talk Brad Boyce Mitigating fatigue failure at the nanoscale · 30 min
09:40	NANOSCALE MECHANICAL BEHAVIOR: FATIGUE, INDENTATION & TRIBOLOGY Contributed talk 1 Cruaños Diego Understanding nanoindentation statistical dispersion in ceramic–metal cemented carbides by numerical simulation and FIB tomography · 20 min
10:00	NANOSCALE MECHANICAL BEHAVIOR: FATIGUE, INDENTATION & TRIBOLOGY Contributed talk 2 Li Feitao The impact of twin boundaries on strength of Mo nanoparticles · 20 min
10:20	NANOSCALE MECHANICAL BEHAVIOR: FATIGUE, INDENTATION & TRIBOLOGY Contributed talk 3 Preuss Oliver Tribological response in oxides by mechanically seeded dislocations: case study on SrTiO ₃ · 20 min
10:40	Coffee Break (30 min)
11:10	NANOSCALE FRACTURE AND SMALL-SCALE PLASTICITY Invited talk Thomas Pardoen Fracture toughness at nanoscale: experimental challenges and physical meaning · 30 min
11:40	NANOSCALE FRACTURE AND SMALL-SCALE PLASTICITY Contributed talk 4 Wurmshuber Michael Achieving excellent combinations of strength, ductility and fracture toughness in UFG W via grain boundary engineering · 20 min
	NANOSCALE FRACTURE AND SMALL-SCALE PLASTICITY

12:00	<p>Contributed talk 5</p> <p>Maeder Xavier</p> <p>Interface-mediated softening and deformation mechanics in amorphous Ta₂O₅/SiO₂ nanolaminates · 20 min</p>
12:20	<p>NANOSCALE FRACTURE AND SMALL-SCALE PLASTICITY</p> <p>Contributed talk 6</p> <p>Amodeo Jonathan</p> <p>Small-scale plasticity in UO₂ nuclear fuel · 20 min</p>
12:40	<p>NANOSCALE FRACTURE AND SMALL-SCALE PLASTICITY</p> <p>Contributed talk 7</p> <p>Kroeker Philipp</p> <p>In-Situ TKD Study of Secondary Twinning and Interaction Mechanisms of {11-21} Deformation Twins · 20 min</p>
13:00	Lunch break (80 min)
14:20	<p>STRUCTURE-PROPERTY CORRELATIONS: MICROSTRUCTURE, DEFORMATION & IN SITU PROBES</p> <p>Invited talk</p> <p>Nathan Mara</p> <p>Structure-Mechanical Property Correlations in Pharmaceutical Crystals · 30 min</p>
14:50	<p>STRUCTURE-PROPERTY CORRELATIONS: MICROSTRUCTURE, DEFORMATION & IN SITU PROBES</p> <p>Contributed talk 9</p> <p>Gammer Christoph</p> <p>In situ 4D-STEM as a route to quantify deformation processes in arbitrarily complex materials · 20 min</p>
15:10	<p>STRUCTURE-PROPERTY CORRELATIONS: MICROSTRUCTURE, DEFORMATION & IN SITU PROBES</p> <p>Contributed talk 10</p> <p>Cios Grzegorz</p> <p>Resolving Overlapping EBSD Patterns by Experiment - Simulation Residuals Analysis · 20 min</p>
15:30	<p>STRUCTURE-PROPERTY CORRELATIONS: MICROSTRUCTURE, DEFORMATION & IN SITU PROBES</p> <p>Contributed talk 11</p> <p>Lemkova Valeria</p>

Bridging Mechanical Response and Atomic Structure: Insights from Activation Volume and Synchrotron Scattering · 20 min

15:50 **Remarks on dinner place and posters**
10 min

16:10 **Poster Session** (with Coffee break) (110 min)

Wednesday, 29 April 2026

08:50	Welcome reception (10 min)
09:00	ATOMISTIC-TO-MULTISCALE NANOMECHANICS Invited talk Julien Guénoilé Atomic-Scale Informed Dislocation Density Fields for Interface-Dominated Nanomechanics · 30 min
09:30	ATOMISTIC-TO-MULTISCALE NANOMECHANICS Contributed talk 1 Anand Sriram Assessing the Reliability of Interatomic Potentials for Nanomechanical Simulations · 20 min
09:50	ATOMISTIC-TO-MULTISCALE NANOMECHANICS Contributed talk 2 Wang Hexin Stochastic twinning in confined volume of Mg: Insights from nanomechanical testing & atomistic modelling · 20 min
10:10	ATOMISTIC-TO-MULTISCALE NANOMECHANICS Contributed talk 3 Koch Peter Size-dependent dislocation processes in Pt nanoparticles under nanoindentation · 20 min
10:30	ATOMISTIC-TO-MULTISCALE NANOMECHANICS Contributed talk 4 Alvarez Donado Rene Alberto Understanding Oxygen-Driven Plasticity in Amorphous Alloys via Multiscale Simulations and Ab Initio Trained Machine Learning Force Fields · 20 min
10:50	Coffee Break (30 min)

11:20	<p>FAIR DATA AND SCALABLE MACHINE LEARNING FOR MECHANICS</p> <p>Invited talk</p> <p>Jakob Koenig</p> <p>Bridging Industry and Academia: A Practical Approach to FAIR Data Management · 30 min</p>
11:50	<p>FAIR DATA AND SCALABLE MACHINE LEARNING FOR MECHANICS</p> <p>Invited talk</p> <p>Claus O. W. Trost</p> <p>Using explainable machine learning to learn from nanoindentation mapping – Should we use more features? · 30 min</p>
12:20	<p>FAIR DATA AND SCALABLE MACHINE LEARNING FOR MECHANICS</p> <p>Contributed talk 5</p> <p>Huckfeldt Pia</p> <p>Micromechanical testing of Ni-Cu/-Au solid solutions · 20 min</p>
12:40	<p>FAIR DATA AND SCALABLE MACHINE LEARNING FOR MECHANICS</p> <p>Contributed talk 6</p> <p>Peivaste Iman</p> <p>Drastic Acceleration of Phase-Field Microstructure Simulations: A High-Performance Fourier Neural Operator Approach · 20 min</p>
13:00	<p>FAIR DATA AND SCALABLE MACHINE LEARNING FOR MECHANICS</p> <p>Contributed talk 7</p> <p>Zare Pakzad Sina</p> <p>Scalable Machine Learning Analysis of Resonance Behavior in Silicon MEMS Cantilevers · 20 min</p>
13:20	<p>Closing remarks</p> <p>Benoit Merle, Edoardo Rossi</p> <p>10 min</p>

Venue map, internal navigation and PDF download are included for website use.