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Nano 2023 Innovation
Rome, 18-22 September
Conference & Exhibition

**www.nanoinnovation.eu**

**International Mini-Symposium on**

# Bridging the Gap between Atomistic Modeling and Continuum Mechanics

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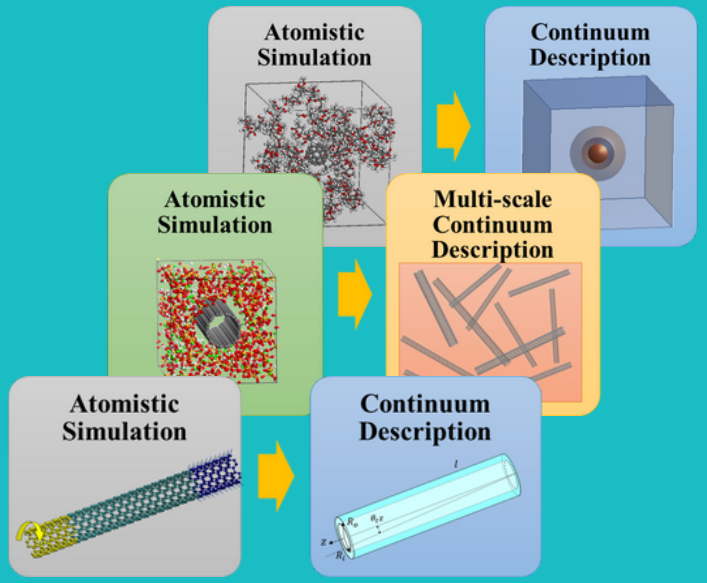
# Nannoinnovation 2023, Conference & Exhibition

**Sapienza University of Rome, Italy**
**September, 18-22, 2023**




**International Mini-Symposium on**

# Bridging the Gap between Atomistic Modeling and Continuum Mechanics

**Deadline for abstract submission: 17 June 2023**

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## TOPICS

- Hierarchical/Concurrent multiscale modeling approaches
- Classical and non-classical continuum mechanics for description of discrete systems
- Machine learning for bridging the gap between atomistic and continuum description
- Atomistic models (molecular dynamics and Monte Carlo simulations, etc.), and their relevance to continuum mechanics
- Applications of atomistic modeling to continuum mechanics problems (fracture, fatigue, and deformation etc.)
- Experimental techniques to refine and validate atomistic-continuum models.
- Calibration of constitutive models to capture the material behavior at multiple length scales.
- Uncertainty quantification in atomistic-continuum modeling
- Case studies of atomistic-continuum modeling (the benefits and limitations)
- Novel applications of atomistic-continuum modeling (nanotechnology, soft matter, and biological systems, etc.)
- Carbon Nanotubes and Nanosheets for Sustainable Solutions
- Nanoscience & Nanotechnology in Advanced Composites
- Nanomaterials for Alleviating Climate Change

## Special Issue (not limited to)

- SN applied Sciences
- Journal of Experimental and Theoretical Analyses—JETA

## Description of mini-symposium

The min-symposium "Bridging the Gap between Atomistic Modeling and Continuum Mechanics" integrated aims to explore the challenges and opportunities in connecting two fundamental approaches in materials science and engineering; Atomistic and continuum modeling. Despite their differences, these two approaches can be complementary in providing a comprehensive and efficient understanding of materials behavior. By combination of atomistic and continuum descriptions, one can benefit from the efficiency of continuum description while preserving the accuracy of detailed atomistic modeling.

The symposium will bring together researchers and practitioners from different fields to present their recent work, discuss the latest developments, and share their experiences in bridging the gap between atomistic simulation and continuum modeling.

The aim of the symposium is to foster a better understanding of the strengths and limitations of both atomistic simulation and continuum modeling and to explore new ways to integrate the two approaches to advance our knowledge of materials behavior. The symposium will also provide a platform for networking and collaboration among researchers, practitioners, and industry professionals interested in this exciting and rapidly evolving field.

## NanoInnovation 2023


The mini-symposium "Bridging the Gap between Atomistic Modeling and Continuum Mechanics" is a part of the NanoInnovation 2023 conference and exhibition, hosted again in the renaissance cloister by Sangallo at the Faculty of Civil and Industrial Engineering of Sapienza University of Rome.

NanoInnovation is the national reference event for the wide and multidisciplinary community involved in the study and development of advanced solutions and devices based on nanotechnologies and their integration with other Key Enabling Technologies (KETs) in all application fields in both materials and life sciences.

The programme of NanoInnovation 2023, strongly oriented toward application and market aspects, foresees the presence of highly qualified speakers and organizations.