MACHINE LEARNING AND MULTISCALE MODELING FOR COMPLEX MATERIALS AND STRUCTURES

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MINISYMPOSIUM

The rapid development of computational technologies in artificial intelligence (AI) and machine learning (ML) has started to revolutionize many aspects of our lives, while also significantly changing the way computational modeling and simulation are performed. Indeed, ML and other intelligent statistics techniques extend the applicability of computational mechanics, molecular modeling, topology optimization, and structural design, for instance, by combining physics-based simulations and data-based inference. In this mini-symposium, we aim to provide a forum for the latest developments in applying AI-based technologies, such as ML in applied mechanics, materials, and engineering problems in general. We welcome all contributions, with particular interests in these areas:

- Applications of computational data science to design of materials at micro and meso scales.
- ML approaches to molecular dynamics and finite element methods.
- AI-based methods and approaches to additive manufacturing and 3D printing of complex materials.
- Data-driven methods for design, synthesis, and characterization of polymers and their composites.
- AI-based approaches to materials characterization and analysis.
- Hybrid methods in topology optimization.