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MODELING AND SIMULATION OF DEFECTS AND INTERFACES IN MATERIALS

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ABSTRACT

Materials defects and interfaces, such as dislocations and grain boundaries in solids, fluid-solid and fluid-fluid interfaces, and fine microstructures within advanced materials, play essential roles in the mechanical and dynamical behaviors of the materials. The complexity of modeling microstructures of these defects and interfaces, and their evolution at various length and time scales present new challenges for modeling and analysis of materials. Multiscale and multiphysics models are required to accurately describe the complicated phenomenon associated with defects and interfaces as well as their implications to the properties of materials. In this minisymposium, we cordially invite speakers around the world to present and discuss the latest advances in developing novel modeling and simulation methods to investigate defect/interface of materials, and new insights into associated mechanical, physical, and chemical properties.