

Multi-scale Modeling in Contact Mechanics

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Summary

As the variety of multi-scale modeling techniques and their solution methodologies grow, the need for developing methods to capture the interaction between these different multi-scale models has also become apparent. The area of contact mechanics is a fitting example where the need for capturing this interaction between different types of models is highlighted. For instance, multi-scale contact arises when a continuum model comes into physical contact with an atomistic model, or when different types of structural models such as rods, beams, plates and shells contact each other or another continuum domain. In such cases, the need for multi-scale models that consistently capture contact interactions, while preserving the underlying scale effects, gains significant importance. This minisymposium invites contributions that address such issues encountered in problems in multiscale contact mechanics.

Target areas

- Contact Mechanics
- Multi-scale methods
- Structural contact: beam-to-beam, beam-to-shell, shell-to-shell
- Continuum-structural contact; Continuum-atomistic contact, Continuum-continuum contact
- Other related problems: Time integration for dynamic multi-scale contact; Frictional contact; Contact stabilization; Contact initiated fracture etc.