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Topics on biochemical simulations: multiscale methods, thermodynamics, and field theory representations for open systems

Wednesday 25 September 2024 11:00 (45 minutes)

This presentation explores advanced topics in the simulation of biochemical systems, with a particular emphasis on multiscale approaches for modeling open systems characterized by varying particle/molecule numbers. We will discuss key methods, including hybrid and coarse-grained simulation schemes, as well as the integration of thermodynamic principles and field theory representations to develop and enhance multiscale methodologies. These approaches provide a robust framework for understanding complex biochemical interactions and can be extended to model a wide range of other complex systems beyond biochemistry, demonstrating their versatility and broad applicability.

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Session Classification: Multiscale Models in Cell Biology I (Chair: Thomas Sokolowski)