

Multiscale Method for Micro- and Nano-Fluid Flow

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Abstract: In this talk, I will present a hybrid multiscale numerical method based on constrained dynamics which employs continuum description in one region and atomistic description in the another. The method is used to simulate time-dependent Couette flow, channel flow with rough wall and driven cavity. The simulated results from the multiscale method agree quantitatively with analytical solutions and predictions from full molecular dynamics simulations. Future applications of the multiscale method will be elaborated.