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Simulations of Micro- and Nano-Channel Flows by a Dissipative Particle Dynamics Method

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The numerical modeling of micro- and nano-flows is very important for understanding micro-fluidics phenomena in industrial applications. However the methods, which are widely used, have various limitations. The continuum models cannot provide correct description of near wall behavior of fluids (no-slip boundary conditions is enforced). Molecular Dynamics approach is very expensive computationally. Therefore the industrial application is limited. In this paper we propose to model nano- and micro-flows by Dissipative Particle Dynamics.

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