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Momentum fluctuations in coarse-grained fluid models M. REZA PARSA, CHANGHO KIM, Department of Applied Mathematics, University of California, Merced, California 95343, USA — We investigate the equilibrium momentum fluctuations in the mesoscopic description of a two dimensional fluid. For a dilute Lennard-Jones gas, we measure momentum fluctuations using Molecular Dynamics simulations as well as the Molecular Dynamics Lattice Gas method. We compare these fluctuations to the corresponding ones obtained from the fluctuating lattice Boltzmann method. We find that the fluctuations are significantly different for different definitions of fluid momentum. We present the analytical expressions for the variances of the different fluctuations in the ideal gas limit.

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