

Abstract Submitted  
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**Hybrid DSMC-LBM scheme for pressure-driven flows** GIANLUCA DI STASO, FEDERICO TOSCHI, HERMAN J.H. CLERCX, Eindhoven Univ of Tech — Lattice Boltzmann Method (LBM) is a standard numerical methodology that, in principle, can be used to simulate flows ranging from hydrodynamic to rarefied gas as it is based on a discretisation of the Boltzmann equation. However at increasing rarefaction the number of needed speeds may become very large making the scheme prohibitively expensive under very rarefied conditions. Another classical technique, also based on the discretisation of the Boltzmann equation, and effective under rarefied conditions is the Direct Simulation Monte Carlo (DSMC). We present results on the development of a hybrid scheme able to combine both numerical techniques to efficiently and accurately study flows with varying rarefaction. Details of the implementation and validation against few representative flows will be presented.

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