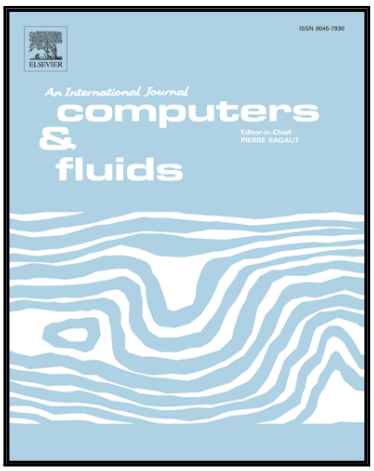

A Robust Lattice Boltzmann Method for Parallel Simulations of Multicomponent Flows in Complex Geometries

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PII: S0045-7930(17)30148-2
DOI: 10.1016/j.compfluid.2017.04.021
Reference: CAF 3462

To appear in: *Computers and Fluids*

Received date: 28 July 2014
Revised date: 5 April 2017
Accepted date: 21 April 2017

Please cite this article as: Jens Zudrop, Kannan Masilamani, Sabine Roller, Pietro Asinari, A Robust Lattice Boltzmann Method for Parallel Simulations of Multicomponent Flows in Complex Geometries, *Computers and Fluids* (2017), doi: 10.1016/j.compfluid.2017.04.021

Highlights

- We present a robust and efficient Lattice Boltzmann Method for non-ideal mixtures on octree meshes.
- We analyze boundary conditions for the presented model.
- Well-posedness of the implicit-to-explicit variable transformation of the Lattice Boltzmann Method is shown.
- Massively parallel simulation of a realistic mixing process in a porous media with billions of species elements.
- We demonstrate high computational performance on a high ranked TOP500 system.