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Large Scale Lattice-Boltzmann Simulations: Computational Methods and Applications

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Publications

1. D. Kandhai, A. Koponen, A. Hoekstra, M. Kataja, J. Timonen, and P. Slood, 'Implementation Aspects of 3D Lattice-BGK: Boundaries, Accuracy and a New Fast Relaxation Method', *J. Comp. Phys.*, **150**, 482-501 (1999).
2. D. Kandhai, A. Koponen, A. Hoekstra, and P.M.A. Slood, 'Iterative Momentum Relaxation for Fast LBM Simulations' *High-Performance Computing and Networking 1999* , **LNCS 1593**, Springer-Verlag, 311-319 (1999)
3. D. Kandhai, D. Dubbeldam, A. Hoekstra, and P. M. A. Slood, 'Parallel Lattice-Boltzmann simulation of fluid flow in a centrifugal elutriation chamber', in High-Performance Computing and Networking (P. Slood, M. Bubak, B. Hertzberger. eds.), no. 1401 in Lecture Notes in Computer Science, (Amsterdam, The Netherlands), pp. 173-182, Springer-Verlag, 1998. ISBN 3-540-64443-1.
4. D. Kandhai, A. Koponen, A. Hoekstra, M. Kataja, J. Timonen, and P. Slood, 'Lattice-Boltzmann Hydrodynamics on Parallel Systems', *Comput. Phys. Commun.*, **111**, 14-26 (1998).
5. D. Kandhai, D.J.-E. Vidal, A.G. Hoekstra, H. Hoefsloot, P. Iedema, and P.M.A. Slood, 'A Comparison between Lattice-Boltzmann and Finite-Element Simulations of Fluid Flow in Static Mixer Reactors', *Int. J. Mod. Phys. C*, **9** (8), 1123 (1998).
6. D. Kandhai, D. Vidal, A. Hoekstra, H. Hoefsloot, P. Iedema, and P. Slood, 'Lattice-Boltzmann and Finite-Element Simulations of fluid flow in a SMRX Static Mixer', *Int. J. Num. Meth. Fluids*, In press.
7. A. Koponen, D. Kandhai, M. Kataja, and J. Timonen, 'Simulations of single-fluid flow in porous media', *Int. J. Mod. Phys. C*, **9** (8), (1998).
8. A. Koponen, D. Kandhai, E. Hellen, M. Alava, A. Hoekstra, M. Kataja, K. Niskanen, P. Slood, and J. Timonen, 'Permeability of Three-Dimensional Random Fiber Webs', *Phys. Rev. Lett.*, **80**, 716-719 (1998).
9. D.S. Clague, D. Kandhai, R. Zhang, and P.M.A. Slood, 'Hydraulic Permeability of (Un)Bounded Fibrous Media Using the Lattice-Boltzmann Method', *Phys. Rev. E*, Accepted.

10. D. Kandhai, W. Soll, S. Chen, A. Hoekstra, and P. Slood, 'Finite-Difference Lattice-BGK Methods on Nested Grids', *Comp. Phys. Comm.*, Accepted.

Publications

1. D. Kandhai, A. Kopyov, A. Hoekstra, M. Kataja, J. Timonen, and P. Slood, 'Implementation Aspects of 3D Lattice-BGK Hydrodynamics Accuracy and a New Fast Relaxation Method', *J. Comput. Phys.*, 180, 482-501 (1999).
2. D. Kandhai, A. Kopyov, A. Hoekstra, and P.M.A. Slood, 'Hydrodynamic Simulation Relaxation for Fast LBM Simulations', *High-Performance Computing and Networking 1999*, LNCS 1888, Springer-Verlag, 211-219 (1999).
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9. D.S. Glynn, D. Kandhai, F. Zhang, and P.M.A. Slood, 'Hydrodynamic Permeability of Unbounded Fibrous Media Using the Lattice-Boltzmann Method', *Phys. Rev. E*, Accepted.

