Xiaowen Shan

List of Publications by Citations

66 papers	7,852 citations	30 h-index	70 g-index
70 ext. papers	8,580 ext. citations	2.8 avg, IF	6.23 L-index

#	Paper	IF	Citations
66	Lattice Boltzmann model for simulating flows with multiple phases and components. *Physical Review E*, **1993**, 47, 1815-1819	2.4	2233
65	Simulation of nonideal gases and liquid-gas phase transitions by the lattice Boltzmann equation. *Physical Review E*, **1994**, 49, 2941-2948	2.4	938
64	Kinetic theory representation of hydrodynamics: a way beyond the Navier–Stokes equation. *Journal of Fluid Mechanics*, **2006**, 550, 413	3.7	689
63	Discrete Boltzmann equation model for nonideal gases. *Physical Review E*, **1998**, 57, R13-R16	2.4	414
62	Multicomponent lattice-Boltzmann model with interparticle interaction. *Journal of Statistical Physics*, **1995**, 81, 379-393	1.5	413
61	Simulation of Rayleigh-Bénard convection using a lattice Boltzmann method. *Physical Review E*, **1997**, 55, 2780-2788	2.4	385
60	Discretization of the Velocity Space in the Solution of the Boltzmann Equation. *Physical Review Letters*, **1998**, 80, 65-68	7.4	310
59	Analysis and reduction of the spurious current in a class of multiphase lattice Boltzmann models. *Physical Review E*, **2006**, 73, 047701	2.4	217
58	Lattice Boltzmann computational fluid dynamics in three dimensions. *Journal of Statistical Physics*, **1992**, 68, 379-400	1.5	209
57	Diffusion in a multicomponent lattice Boltzmann equation model. *Physical Review E*, **1996**, 54, 3614-3620	2.4	191
56	Efficient kinetic method for fluid simulation beyond the Navier-Stokes equation. *Physical Review E*, **2006**, 74, 046703	2.4	167
55	Analysis of drag and virtual mass forces in bubbly suspensions using an implicit formulation of the lattice Boltzmann method. *Journal of Fluid Mechanics*, **2002**, 452, 61-96	3.7	156
54	Pressure tensor calculation in a class of nonideal gas lattice Boltzmann models. *Physical Review E*, **2008**, 77, 066702	2.4	118
53	Evaluation of the external force term in the discrete Boltzmann equation. *Physical Review E*, **1998**, 58, 6855-6857	2.4	109
52	Evaluation of Two Lattice Boltzmann Models for Multiphase Flows. *Journal of Computational Physics*, **1997**, 138, 695-713	4.1	107
51	Lattice Boltzmann method with self-consistent thermo-hydrodynamic equilibria. *Journal of Fluid Mechanics*, **2009**, 628, 299-309	3.7	80
50	A GENERAL MULTIPLE-RELAXATION-TIME BOLTZMANN COLLISION MODEL. *International Journal of Modern Physics C*, **2007**, 18, 635-643	1.1	71

49	Lattice ellipsoidal statistical BGK model for thermal non-equilibrium flows. *Journal of Fluid Mechanics*, **2013**, 718, 347-370	3.7	62
48	Galilean invariance of lattice Boltzmann models. *Europhysics Letters*, **2008**, 81, 34005	1.6	61
47	General solution of lattices for Cartesian lattice Bhatanagar-Gross-Krook models. *Physical Review E*, **2010**, 81, 036702	2.4	58
46	Nonlinear magnetohydrodynamics by Galerkin-method computation. *Physical Review A*, **1991**, 44, 6800-6818	2.8	57
45	Lattice Boltzmann simulation of shale gas transport in organic nano-pores. *Scientific Reports*, **2014**, 4, 4843	4.9	53
44	Bubble flow simulations with the lattice Boltzmann method. *Chemical Engineering Science*, **1999**, 54, 4817-4823	4.4	52
43	High-resolution turbulent simulations using the Connection Machine-2. *Computers in Physics*, **1992**, 6, 643		51
42	Navier–Stokes relaxation to sinh–Poisson states at finite Reynolds numbers. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 2207-2216		50
41	Multiscale lattice Boltzmann approach to modeling gas flows. *Physical Review E*, **2011**, 83, 046701	2.4	40
40	Fundamental conditions for N-th-order accurate lattice Boltzmann models. *Physica D: Nonlinear Phenomena*, **2008**, 237, 2003-2008	3.3	40
39	Lattice Boltzmann models for nonideal fluids with arrested phase-separation. *Physical Review E*, **2008**, 77, 036705	2.4	36
38	Consistent pseudopotential interactions in lattice Boltzmann models. *Physical Review E*, **2011**, 84, 036703	2.4	34
37	Thermal lattice Boltzmann model for gases with internal degrees of freedom. *Physical Review E*, **2008**, 77, 035701	2.4	32
36	On the role of the Hartmann number in magnetohydrodynamic activity. *Plasma Physics and Controlled Fusion*, **1993**, 35, 619-631	2	30
35	The mathematical structure of the lattices of the lattice Boltzmann method. *Journal of Computational Science*, **2016**, 17, 475-481	3.4	27
34	Continuum free-energy formulation for a class of lattice Boltzmann multiphase models. *Europhysics Letters*, **2009**, 86, 24005	1.6	27
33	Lattice Boltzmann spray-like fluids. *Europhysics Letters*, **2008**, 82, 24005	1.6	26
32	Magnetohydrodynamic stabilization through rotation. *Physical Review Letters*, **1994**, 73, 1624-1627	7.4	25

31	Multicomponent lattice Boltzmann model from continuum kinetic theory. *Physical Review E*, **2010**, 81, 045701	2.4	24
30	Shape changes and motion of a vesicle in a fluid using a lattice Boltzmann model. *Europhysics Letters*, **2008**, 81, 54002	1.6	23
29	Global searches of Hartmann-number-dependent stability boundaries. *Plasma Physics and Controlled Fusion*, **1993**, 35, 1019-1032	2	23
28	Central-moment-based Galilean-invariant multiple-relaxation-time collision model. *Physical Review E*, **2019**, 100, 043308	2.4	22
27	Galerkin approximations for dissipative magnetohydrodynamics. *Physical Review A*, **1990**, 42, 6158-6165	2.6	22
26	Modeling adsorption with lattice Boltzmann equation. *Scientific Reports*, **2016**, 6, 27134	4.9	19
25	Temperature-scaled collision process for the high-order lattice Boltzmann model. *Physical Review E*, **2019**, 100, 013301	2.4	14
24	Lattice Boltzmann method for adiabatic acoustics. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2011**, 369, 2371-80	3	13
23	Chemical-potential multiphase lattice Boltzmann method with superlarge density ratios. *Physical Review E*, **2020**, 102, 013303	2.4	12
22	A Lattice-Boltzmann / Finite-Difference Hybrid Simulation of Transonic Flow **2009**,		12
21	New direction of computational fluid dynamics and its applications in industry. *Science in China Series D: Earth Sciences*, **2007**, 50, 521-533		12
20	The formation mechanism of recirculating wake for steady flow through and around arrays of cylinders. *Physics of Fluids*, **2019**, 31, 043607	4.4	11
19	Propagating high-frequency shear waves in simple fluids. *Physics of Fluids*, **2009**, 21, 013105	4.4	11
18	On the transition behavior of laminar flow through and around a multi-cylinder array. *Physics of Fluids*, **2020**, 32, 013601	4.4	11
17	Investigation of drag properties for flow through and around square arrays of cylinders at low Reynolds numbers. *Chemical Engineering Science*, **2019**, 199, 285-301	4.4	9
16	Lattice Boltzmann in micro- and nano-flow simulations. *IMA Journal of Applied Mathematics*, **2011**, 76, 650-660	1	8
15	Rotating magnetohydrodynamics. *Journal of Plasma Physics*, **1994**, 52, 113-128	2.7	8
14	Mass Transport/Diffusion and Surface Reaction Process with Lattice Boltzmann. *Communications in Computational Physics*, **2011**, 9, 1362-1374	2.4	5

List of Publications

13	Effects of uniform rotation on helically-deformed, resistive, magnetohydrodynamic equilibria. *Plasma Physics and Controlled Fusion*, **1991**, 33, 1871-1875	2	5
12	Modelling viscoacoustic wave propagation with the lattice Boltzmann method. *Scientific Reports*, **2017**, 7, 10169	4.9	4
11	Connection between pore-scale and macroscopic flow characteristics of recirculating wake behind a porous cylinder. *Physics of Fluids*, **2020**, 32, 083606	4.4	4
10	Accuracy of high-order lattice Boltzmann method for non-equilibrium gas flow. *Journal of Fluid Mechanics*, **2021**, 907,	3.7	3
9	Microscopic origins and macroscopic uses of plasma rotation. *Journal of Plasma Physics*, **1995**, 54, 1-10	2.7	2
8	A multiple-relaxation-time collision model for nonequilibrium flows. *Physics of Fluids*, **2021**, 33, 037134	4.4	2
7	Entropies for Continua: Fluids and Magnetofluids **1996**, 303-314		1
6	Rotational symmetry of the multiple-relaxation-time collision model. *Physical Review E*, **2021**, 103, 043309	2.4	1
5	Structure and isotropy of lattice pressure tensors for multirange potentials. *Physical Review E*, **2021** , 103, 063309	2.4	1
4	A multiple-relaxation-time collision model by Hermite expansion. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2021**, 379, 20200406	3	1
3	Effect of Airfoil Dimple on Low-Reynolds-Number Differing Laminar Separation Behavior via Multi-Objective Optimization. *Journal of Aircraft*,1-14	1.6	1
2	Mesoscale perspective on the Tolman length.. *Physical Review E*, **2022**, 105, 015301	2.4	0
1	Magnetohydrodynamic turbulence with net currents **1995**, 241-254		