Aiguo Xu

List of Publications by Year
in descending order

110 papers	2,533 citations	159358 30 h-index	233125 45 g-index
110 all docs	110 docs citations	110 times ranked	936 citing authors

#	Article	IF	Citations
1	Discrete Boltzmann modeling of multiphase flows: hydrodynamic and thermodynamic non-equilibrium effects. Soft Matter, 2015, 11, 5336-5345.	1.2	115
2	Lattice Boltzmann modeling and simulation of compressible flows. Frontiers of Physics, 2012, 7, 582-600.	2.4	100
3	Two-dimensional lattice Boltzmann model for compressible flows with high Mach number. Physica A: Statistical Mechanics and Its Applications, 2008, 387, 1721-1732.	1.2	79
4	Nondestructive identification of impurities in granular medium. Applied Physics Letters, 2002, 81, 4868-4870.	1.5	78
5	Double-distribution-function discrete Boltzmann model for combustion. Combustion and Flame, 2016, 164, 137-151.	2.8	76
6	Nonequilibrium thermohydrodynamic effects on the Rayleigh-Taylor instability in compressible flows. Physical Review E, 2016, 94, 023106.	0.8	75
7	Phase-separating binary fluids under oscillatory shear. Physical Review E, 2003, 67, 056105.	0.8	73
8	Multiple-relaxation-time lattice Boltzmann kinetic model for combustion. Physical Review E, 2015, 91, 043306.	0.8	73
9	Multiple-relaxation-time lattice Boltzmann approach to compressible flows with flexible specific-heat ratio and Prandtl number. Europhysics Letters, 2010, 90, 54003.	0.7	68
10	Phase separation of incompressible binary fluids with lattice Boltzmann methods. Physica A: Statistical Mechanics and Its Applications, 2004, 331, 10-22.	1.2	67
11	Lattice Boltzmann study on Kelvin-Helmholtz instability: Roles of velocity and density gradients. Physical Review E, 2011, 83, 056704.	0.8	62
12	Discrete Boltzmann trans-scale modeling of high-speed compressible flows. Physical Review E, 2018, 97, 053312.	0.8	58
13	Lattice Boltzmann model for combustion and detonation. Frontiers of Physics, 2013, 8, 94-110.	2.4	56
14	Morphologies and flow patterns in quenching of lamellar systems with shear. Physical Review E, 2006, 74, 011505.	0.8	54
15	Lattice BGK kinetic model for high-speed compressible flows: Hydrodynamic and nonequilibrium behaviors. Europhysics Letters, 2013, 103, 24003.	0.7	49
16	Finite-difference lattice-Boltzmann methods for binary fluids. Physical Review E, 2005, 71, 066706.	0.8	48
17	Phase separation in thermal systems: A lattice Boltzmann study and morphological characterization. Physical Review E, 2011, 84, 046715.	0.8	47
18	Polar-coordinate lattice Boltzmann modeling of compressible flows. Physical Review E, 2014, 89, 013307.	0.8	47

#	ARTICLE	IF	CITATIONS
19	Scaling and hydrodynamic effects in lamellar ordering. Europhysics Letters, 2005, 71, 651-657.	0.7	46
20	Viscosity, heat conductivity, and Prandtl number effects in the Rayleighâ€“Taylor Instability. Frontiers of Physics, 2016, 11, 1.	2.4	42
21	Discrete Boltzmann modeling of Rayleigh-Taylor instability in two-component compressible flows. Physical Review E, 2017, 96, 053305.	0.8	41
22	Nonequilibrium and morphological characterizations of Kelvinâ€“Helmholtz instability in compressible flows. Frontiers of Physics, 2019, 14, 1.	2.4	41
23	Effects of gravity and nonlinearity on the waves in the granular chain. Physical Review E, 2001, 63, 061310.	0.8	40
24	Kinetic modeling of detonation and effects of negative temperature coefficient. Combustion and Flame, 2016, 173, 483-492.	2.8	40
25	LATTICE BOLTZMANN APPROACH TO HIGH-SPEED COMPRESSIBLE FLOWS. International Journal of Modern Physics C, 2007, 18, 1747-1764.	0.8	38
26	Collaboration and competition between Richtmyer-Meshkov instability and Rayleigh-Taylor instability. Physics of Fluids, 2018, 30, .	1.6	38
27	A Drosophila Protein Family Implicated in Pheromone Perception Is Related to Tay-Sachs GM2-Activator Protein. Journal of Biological Chemistry, 2009, 284, 585-594.	1.6	33
28	Multiple-relaxation-time lattice Boltzmann model for compressible fluids. Physics Letters, Section A: General, Atomic and Solid State Physics, 2011, 375, 2129-2139.	0.9	33
29	Lattice Boltzmann study of thermal phase separation: Effects of heat conduction, viscosity and Prandtl number. Europhysics Letters, 2012, 97, 44002.	0.7	31
30	Three-Dimensional Lattice Boltzmann Model for High-Speed Compressible Flows. Communications in Theoretical Physics, 2010, 54, 1121-1128.	1.1	30
31	Two-dimensional finite-difference lattice Boltzmann method for the complete Navier-Stokes equations of binary fluids. Europhysics Letters, 2005, 69, 214-220.	0.7	29
32	Simulations of complex fluids by mixed lattice Boltzmannâ€”finite difference methods. Physica A: Statistical Mechanics and Its Applications, 2006, 362, 42-47.	1.2	29
33	Discrete Boltzmann method for non-equilibrium flows: Based on Shakhov model. Computer Physics Communications, 2019, 238, 50-65.	3.0	29
34	Three-Dimensional Multi-mesh Material Point Method for Solving Collision Problems. Communications in Theoretical Physics, 2008, 49, 1129-1138.	1.1	27
35	Entropy production in thermal phase separation: a kinetic-theory approach. Soft Matter, 2019, 15, 2245-2259.	1.2	27
36	Morphological and non-equilibrium analysis of coupled Rayleighâ€“Taylorâ€“Kelvinâ€“Helmholtz instability. Physics of Fluids, 2020, 32, .	1.6	27

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37	Highly Efficient Lattice Boltzmann Model for Compressible Fluids: Two-Dimensional Case. Communications in Theoretical Physics, 2009, 52, 681-693.	1.1	25
38	Discrete ellipsoidal statistical BGK model and Burnett equations. Frontiers of Physics, 2018, 13, 1.	2.4	24
39	Microflow effects on the hydraulic aperture of single rough fractures. Advances in Geo-Energy Research, 2019, 3, 104-114.	3.1	24
40	Numerical study of the ordering properties of lamellar phase. Physica A: Statistical Mechanics and Its Applications, 2004, 344, 750-756.	1.2	23
41	Generalized interpolation material point approach to high melting explosive with cavities under shock. Journal Physics D: Applied Physics, 2008, 41, 015401.	1.3	23
42	Flux Limiter Lattice Boltzmann Scheme Approach to Compressible Flows with Flexible Specific-Heat Ratio and Prandtl Number. Communications in Theoretical Physics, 2011, 56, 490-498.	1.1	22
43	Polar Coordinate Lattice Boltzmann Kinetic Modeling of Detonation Phenomena. Communications in Theoretical Physics, 2014, 62, 737-748.	1.1	20
44	Knudsen Number Effects on Two-Dimensional Rayleighâ€"Taylor Instability in Compressible Fluid: Based on a Discrete Boltzmann Method. Entropy, 2020, 22, 500.	1.1	20
45	Multiple-relaxation-time discrete Boltzmann modeling of multicomponent mixture with nonequilibrium effects. Physical Review E, 2021, 103, 013305.	0.8	20
46	Discrete Boltzmann Method with Maxwell-Type Boundary Condition for Slip Flow. Communications in Theoretical Physics, 2018, 69, 77.	1.1	19
47	Discrete Boltzmann modeling of high-speed compressible flows with various depths of non-equilibrium. Physics of Fluids, 2022, 34, .	1.6	19
48	Physical modeling of multiphase flow via lattice Boltzmann method: Numerical effects, equation of state and boundary conditions. Frontiers of Physics, 2012, 7, 481-490.	2.4	18
49	Complex fields in heterogeneous materials under shock: modeling, simulation and analysis. Science China: Physics, Mechanics and Astronomy, 2016, 59, 1.	2.0	18
50	Delineation of the flow and mixing induced by Rayleighâ€"Taylor instability through tracers. Physics of Fluids, 2021, 33, .	1.6	17
51	Control of spiral-wave dynamics using feedback signals from line detectors. Europhysics Letters, 2010, 90, 10013.	0.7	16
52	FFT-LB Modeling of Thermal Liquid-Vapor System. Communications in Theoretical Physics, 2012, 57, 681-694.	1.1	16
53	Attractive and repulsive contributions of localized excitability inhomogeneities and elimination of spiral waves in excitable media. Physical Review E, 2013, 88, 022920.	0.8	16
54	Kinetic modeling of multiphase flow based on simplified Enskog equation. Frontiers of Physics, 2020, 15, 1.	2.4	16

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55	Morphological characterization of shocked porous material. Journal Physics D: Applied Physics, 2009, 42, 075409.	1.3	15
56	Multiple-Relaxation-Time Lattice Boltzmann Approach to Richtmyerâ€"Meshkov Instability. Communications in Theoretical Physics, 2011, 55, 325-334.	1.1	15
57	Discrete Boltzmann model for implosion- and explosionrelated compressible flow with spherical symmetry. Frontiers of Physics, 2018, 13, 1.	2.4	15
58	Effects of the initial perturbations on the Rayleighâ€"Taylorâ€"Kelvinâ€"Helmholtz instability system. Frontiers of Physics, 2022, 17, 1.	2.4	14
59	Material-point simulation of cavity collapse under shock. Journal of Physics Condensed Matter, 2007, 19, 326212.	0.7	13
60	Dynamics of spiral waves driven by a dichotomous periodic signal. Nonlinear Dynamics, 2012, 70, 1719-1730.	2.7	13
61	Generalized Frenkel-Kontorova model: A diatomic chain in a sinusoidal potential. Physical Review B, 1998, 58, 721-733.	1.1	12
62	Dynamical similarity in shock wave response of porous material: From the view of pressure. Computers and Mathematics With Applications, 2011, 61, 3618-3627.	1.4	12
63	Two-dimensional MRT LB model for compressible and incompressible flows. Frontiers of Physics, 2014, 9, 246-254.	2.4	12
64	Discrete Boltzmann modeling of Rayleigh-Taylor instability: Effects of interfacial tension, viscosity, and heat conductivity. Physical Review E, 2022, 106, .	0.8	12
65	Spiral waves in excitable media due to noise and periodic forcing. Chaos, Solitons and Fractals, 2011, 44, 728-738.	2.5	11
66	Two-fluid discrete Boltzmann model for compressible flows: Based on ellipsoidal statistical Bhatnagarâ€"Grossâ€"Krook. Physics of Fluids, 2020, 32, .	1.6	11
67	Flux Limiter Lattice Boltzmann for Compressible Flows. Communications in Theoretical Physics, 2011, 56, 333-338.	1.1	10
68	Discrete Boltzmann modeling of plasma shock wave. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2023, 237, 2532-2548.	1.1	10
69	Lattice BBGKY scheme for two-phase flows: One-dimensional case. Mathematics and Computers in Simulation, 2006, 72, 249-252.	2.4	9
70	Finite-Difference Lattice Boltzmann Scheme for High-Speed Compressible Flow: Two-Dimensional Case. Communications in Theoretical Physics, 2008, 50, 201-210.	1.1	9
71	Three-dimensional discrete Boltzmann models for compressible flows in and out of equilibrium. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2018, 232, 477-490.	1.1	9
72	Influence of thermal barrier coating on partially premixed combustion in internal combustion engine. Fuel, 2021, 303, 121259.	3.4	9

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73	Rheology and Structure of Quenched Binary Mixtures Under Oscillatory Shear. Communications in Theoretical Physics, 2003, 39, 729-736.	1.1	8
74	Dynamics and Thermodynamics of Porous HMX-like Material Under Shock. Communications in Theoretical Physics, 2009, 52, 901-908.	1.1	8
75	Non-equilibrium characteristics of mass and heat transfers in the slip flow. AIP Advances, 2022, 12, .	0.6	8
76	Two-Dimensional Lattice Boltzmann Methods Based on Sirovich's Kinetic Theory. Progress of Theoretical Physics Supplement, 2006, 162, 197-203.	0.2	7
77	Prandtl number effects in MRT lattice Boltzmann models for shocked and unshocked compressible fluids. Theoretical and Applied Mechanics Letters, 2011, 1, 052004.	1.3	7
78	Discrete Boltzmann modeling of detonation: Based on the Shakhov model. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2023, 237, 2517-2531.	1.1	7
79	Simulation Study of Shock Reaction on Porous Material. Communications in Theoretical Physics, 2009, 51, 691-699.	1.1	6
80	Temperature pattern dynamics in shocked porous materials. Science China: Physics, Mechanics and Astronomy, 2010, 53, 1466-1474.	2.0	6
81	Cellular Automata Model for Elastic Solid Material. Communications in Theoretical Physics, 2013, 59, 59-67.	1.1	6
82	Discrete Boltzmann Modeling of Compressible Flows. , 0, , .		6
83	A One-Dimensional Discrete Boltzmann Model for Detonation and an Abnormal Detonation Phenomenon. Communications in Theoretical Physics, 2019, 71, 117.	1.1	6
84	Ground states of one-dimensional commensurate-incommensurate transition models with double-well interactions. Physical Review B, 1998, 57, 2771-2779.	1.1	5
85	Power-Law Behavior in Signal Scattering Process in Vertical Granular Chain with Light Impurities. Communications in Theoretical Physics, 2001, 36, 699-704.	1.1	4
86	Cluster identification and characterization of physical fields. Science China: Physics, Mechanics and Astronomy, 2010, 53, 1610-1618.	2.0	4
87	Shock wave response of porous materials: from plasticity to elasticity. Physica Scripta, 2010, 81, 055805.	1.2	4
88	Morphology Effect of Surface Structures on Microchannel Flow Using Lattice Boltzmann Method. Geofluids, 2019, 2019, 1-14.	0.3	4
89	Phase diagrams of two generalized FK models. Physics Letters, Section A: General, Atomic and Solid State Physics, 1997, 233, 99-104.	0.9	3
90	RESPONSE OF AUTONOMIC NERVOUS SYSTEM TO BODY POSITIONS: FOURIER AND WAVELET ANALYSIS. Modern Physics Letters B, 2005, 19, 59-78.	1.0	3

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91	Simulating liquid-vapor phase separation under shear with lattice Boltzmann method. Science in China Series G: Physics, Mechanics and Astronomy, 2009, 52, 1337-1344.	0.2	3
92	Frictional effect of bottom wall on granular flow through an aperture on a conveyor belt. Powder Technology, 2020, 367, 421-426.	2.1	3
93	Soliton-Like Pulses in Vertical Granular Chain Under Gravity: Particle-Like or Wave-Like?. Communications in Theoretical Physics, 2001, 35, 106-113.	1.1	2
94	Lattice Boltzmann kinetic modeling and simulation of thermal liquidâ€“vapor system. International Journal of Modern Physics C, 2014, 25, 1441002.	0.8	2
95	é«˜åº”å•˜çŽ‡æ‹‰ä¼¸ä¸‹çº³ç±³ç©ºæ´žçš„æˆé•¿ä¸Žæ—©æœŸç”Ÿé•¿. Scientia Sinica: Physica, Mechanica Et Astronomica, 2012, 42, 464-47	0.2	2
96	Power-Law in Depth-Dependence of Signal Speed in Vertical Granular Chain. Communications in Theoretical Physics, 2001, 36, 199-202.	1.1	1
97	THREE-DIMENSIONAL LATTICE BOLTZMANN MODEL RESULTS FOR COMPLEX FLUIDS ORDERING. International Journal of Modern Physics C, 2005, 16, 1819-1830.	0.8	1
98	Simulation study on cavity growth in ductile metal materials under dynamic loading. Frontiers of Physics, 2013, 8, 394-404.	2.4	1
99	Dynamic Fracture of Ductile Metals at High Strain Rate. Advanced Materials Research, 0, 790, 65-68.	0.3	1
100	Comparative study of discrete Boltzmann model and Navier-Stokes. Journal of Physics: Conference Series, 2018, 1113, 012015.	0.3	1
101	General Index and Its Application in MD Simulations. , 0, , .		1
102	Study on the Quantum FK Model. Communications in Theoretical Physics, 1999, 31, 355-360.	1.1	0
103	Study on Two Generalized FK Models. Communications in Theoretical Physics, 1999, 31, 189-198.	1.1	0
104	PHASE DIAGRAMS OF TWO FKD MODELS WITH DIFFERENT TRIPLE-WELL INTERACTIONS. Modern Physics Letters B, 2000, 14, 725-732.	1.0	0
105	Study on one-dimensional CI phase transition with triple-well interactions. Chinese Physics B, 2000, 9, 42-48.	1.3	0
106	Ground States of a Generalized Frenkel-Kontorova Model. Communications in Theoretical Physics, 2000, 34, 419-432.	1.1	0
107	Driven Diatomic Frenkelâ€“Kontorova Model: Resonant Steps, Spatiotemporal Dynamics and Dynamical Phase Diagrams. Communications in Theoretical Physics, 2001, 35, 229-240.	1.1	0
108	DYNAMICS IN EXCITABLE MEDIA SUBJECTED TO A SPECIFIC SPATIOTEMPORAL WAVE UNDER TWO SCHEMES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2012, 22, 1250148.	0.7	0

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109	Comparative study on several criteria for non-equilibrium phase separation. AIP Conference Proceedings, 2019, , .	0.3	0
110	A multi-feature predicting model of crown evolution involving material properties. AIP Advances, 2022, 12, 055104.	0.6	0