Lei Wu

List of Publications by Year
in descending order

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82 papers	2,188 citations	185998 28 h-index	264894 42 g-index
82 all docs	82 docs citations	82 times ranked	1047 citing authors

#	Article	IF	Citations
1	Deterministic numerical solutions of the Boltzmann equation using the fast spectral method. Journal of Computational Physics, 2013, 250, 27-52.	1.9	115
2	Solving the Boltzmann equation deterministically by the fast spectral method: application to gas microflows. Journal of Fluid Mechanics, 2014, 746, 53-84.	1.4	89
3	A hybrid lattice Boltzmann and finite difference method for droplet dynamics with insolubleÂsurfactants. Journal of Fluid Mechanics, 2018, 837, 381-412.	1.4	81
4	A comparative study of discrete velocity methods for low-speed rarefied gas flows. Computers and Fluids, 2018, 161, 33-46.	1.3	70
5	Modulational instability and bright solitary wave solution for Boseâ€“Einstein condensates with time-dependent scattering length and harmonic potential. New Journal of Physics, 2007, 9, 69-69.	1.2	68
6	On the apparent permeability of porous media in rarefied gas flows. Journal of Fluid Mechanics, 2017, 822, 398-417.	1.4	68
7	Similaritons in nonlinear optical systems. Optics Express, 2008, 16, 6352.	1.7	67
8	Exact solutions of the Gross-Pitaevskii equation for stable vortex modes in two-dimensional Bose-Einstein condensates. Physical Review A, 2010, 81, .	1.0	59
9	A kinetic model of the Boltzmann equation for non-vibrating polyatomic gases. Journal of Fluid Mechanics, 2015, 763, 24-50.	1.4	58
10	Similariton interactions in nonlinear graded-index waveguide amplifiers. Physical Review A, 2008, 78, .	1.0	50
11	Vortex solitons in defocusing media with spatially inhomogeneous nonlinearity. Physical Review E, 2012, 85, 056603.	0.8	50
12	Can we find steady-state solutions to multiscale rarefied gas flows within dozens of iterations?. Journal of Computational Physics, 2020, 407, 109245.	1.9	50
13	A fast spectral method for the Boltzmann equation for monatomic gas mixtures. Journal of Computational Physics, 2015, 298, 602-621.	1.9	46
14	A lattice Boltzmann method for axisymmetric thermocapillary flows. International Journal of Heat and Mass Transfer, 2017, 104, 337-350.	2.5	46
15	Non-equilibrium dynamics of dense gas under tight confinement. Journal of Fluid Mechanics, 2016, 794, 252-266.	1.4	45
16	A lattice Boltzmann method for axisymmetric multicomponent flows with high viscosity ratio. Journal of Computational Physics, 2016, 327, 873-893.	1.9	44
17	Intrinsic and apparent gas permeability of heterogeneous and anisotropic ultra-tight porous media. Journal of Natural Gas Science and Engineering, 2018, 60, 271-283.	2.1	38
18	Comparative study of the discrete velocity and lattice Boltzmann methods for rarefied gas flows through irregular channels. Physical Review E, 2017, 96, 023309.	0.8	37

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19	A multi-level parallel solver for rarefied gas flows in porous media. Computer Physics Communications, 2019, 234, 14-25.	3.0	37
20	A fast iterative scheme for the linearized Boltzmann equation. Journal of Computational Physics, 2017, 338, 431-451.	1.9	35
21	Oscillatory rarefied gas flow inside rectangular cavities. Journal of Fluid Mechanics, 2014, 748, 350-367.	1.4	34
22	Assessment and development of the gas kinetic boundary condition for the Boltzmann equation. Journal of Fluid Mechanics, 2017, 823, 511-537.	1.4	34
23	Fast spectral solution of the generalized Enskog equation for dense gases. Journal of Computational Physics, 2015, 303, 66-79.	1.9	33
24	Self-similar optical pulses in competing cubic-quintic nonlinear media with distributed coefficients. Physical Review A, 2010, 81, .	1.0	31
25	Modelling a surfactant-covered droplet on a solid surface in three-dimensional shear flow. Journal of Fluid Mechanics, 2020, 897, .	1.4	31
26	Assessment of the ellipsoidal-statistical Bhatnagarâ€“Grossâ€“Krook model for force-driven Poiseuille flows. Journal of Computational Physics, 2013, 251, 383-395.	1.9	30
27	Exact soliton solutions and their stability control in the nonlinear SchrÃ¶dinger equation with spatiotemporally modulated nonlinearity. Physical Review E, 2011, 83, 016602.	0.8	29
28	Influence of intermolecular potentials on rarefied gas flows: Fast spectral solutions of the Boltzmann equation. Physics of Fluids, 2015, 27, .	1.6	29
29	Controllable generation and propagation of asymptotic parabolic optical waves in graded-index waveguide amplifiers. Physical Review A, 2008, 78, .	1.0	28
30	Rarefaction throttling effect: Influence of the bend in micro-channel gaseous flow. Physics of Fluids, 2018, 30, .	1.6	28
31	Preferential imbibition in a dual-permeability pore network. Journal of Fluid Mechanics, 2021, 915, .	1.4	28
32	Adomian decomposition method for nonlinear differential-difference equations. Communications in Nonlinear Science and Numerical Simulation, 2009, 14, 12-18.	1.7	27
33	Accurate and efficient computation of the Boltzmann equation for Couette flow: Influence of intermolecular potentials on Knudsen layer function and viscous slip coefficient. Journal of Computational Physics, 2019, 378, 573-590.	1.9	27
34	Matter-wave solitons and finite-amplitude Bloch waves in optical lattices with spatially modulated nonlinearity. Physical Review A, 2010, 82, .	1.0	24
35	Pore-scale simulations of rarefied gas flows in ultra-tight porous media. Fuel, 2019, 249, 341-351.	3.4	24
36	Shale gas permeability upscaling from the pore-scale. Physics of Fluids, 2020, 32, .	1.6	23

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37	Multiscale simulation of molecular gas flows by the general synthetic iterative scheme. Computer Methods in Applied Mechanics and Engineering, 2021, 373, 113548.	3.4	22
38	Numerical investigation of the effects of proppant embedment on fracture permeability and well production in Queensland coal seam gas reservoirs. International Journal of Coal Geology, 2021, 242, 103689.	1.9	22
39	A novel Monte Carlo simulation on gas flow in fractal shale reservoir. Energy, 2021, 236, 121513.	4.5	22
40	Bright solitons on a continuous wave background for the inhomogeneous nonlinear SchrÃ¶dinger equation in plasma. Journal of Physics A, 2006, 39, 11947-11953.	1.6	20
41	Thermal transpiration in molecular gas. Physics of Fluids, 2020, 32, .	1.6	20
42	Comparative study of the Boltzmann and McCormack equations for Couette and Fourier flows of binary gaseous mixtures. International Journal of Heat and Mass Transfer, 2016, 96, 29-41.	2.5	19
43	GSIS: An efficient and accurate numerical method to obtain the apparent gas permeability of porous media. Computers and Fluids, 2020, 206, 104576.	1.3	19
44	Vortices and ring dark solitons in nonlinear amplifying waveguides. Physical Review A, 2010, 81, .	1.0	18
45	A comparative study of the DSBGK and DVM methods for low-speed rarefied gas flows. Computers and Fluids, 2019, 181, 143-159.	1.3	18
46	Rarefied flow separation in microchannel with bends. Journal of Fluid Mechanics, 2020, 901, .	1.4	18
47	Exact and numerical solitary wave solutions of generalized Zakharov equation by the Adomian decomposition method. Chaos, Solitons and Fractals, 2007, 32, 1208-1214.	2.5	17
48	Sound propagation through a rarefied gas in rectangular channels. Physical Review E, 2016, 94, 053110.	0.8	17
49	Implicit Discontinuous Galerkin Method for the Boltzmann Equation. Journal of Scientific Computing, 2020, 82, 1.	1.1	17
50	Fast Convergence and Asymptotic Preserving of the General Synthetic Iterative Scheme. SIAM Journal of Scientific Computing, 2020, 42, B1517-B1540.	1.3	17
51	General synthetic iterative scheme for nonlinear gas kinetic simulation of multi-scale rarefied gas flows. Journal of Computational Physics, 2021, 430, 110091.	1.9	16
52	Nonlinear oscillatory rarefied gas flow inside a rectangular cavity. Physical Review E, 2018, 97, 043103.	0.8	15
53	A hybrid approach to couple the discrete velocity method and Method of Moments for rarefied gas flows. Journal of Computational Physics, 2020, 410, 109397.	1.9	15
54	Propagation of dark similaritons on the compact parabolic background in dispersion-managed optical fibers. Optics Express, 2009, 17, 8278.	1.7	14

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55	Rarefaction cloaking: Influence of the fractal rough surface in gas slider bearings. Physics of Fluids, 2017, 29, 102003.	1.6	14
56	Ab initio calculation of rarefied flows of helium-neon mixture: Classical vs quantum scatterings. International Journal of Heat and Mass Transfer, 2019, 145, 118765.	2.5	14
57	A high-order hybridizable discontinuous Galerkin method with fast convergence to steady-state solutions of the gas kinetic equation. Journal of Computational Physics, 2019, 376, 973-991.	1.9	13
58	On the accuracy of macroscopic equations for linearized rarefied gas flows. Advances in Aerodynamics, 2020, 2, .	1.3	13
59	Modulation instability of ion acoustic waves, solitons, and their interactions in nonthermal electron-positron-ion plasmas. Physics of Plasmas, 2009, 16, .	0.7	12
60	Extraction of the translational Eucken factor from light scattering by molecular gas. Journal of Fluid Mechanics, 2020, 901, .	1.4	12
61	Uncertainty quantification in rarefied dynamics of molecular gas: rate effect of thermal relaxation. Journal of Fluid Mechanics, 2021, 917, .	1.4	12
62	A fast synthetic iterative scheme for the stationary phonon Boltzmann transport equation. International Journal of Heat and Mass Transfer, 2021, 174, 121308.	2.5	12
63	Numerical investigation of proppant transport at hydraulic-natural fracture intersection. Powder Technology, 2022, 398, 117123.	2.1	12
64	Self-similar parabolic pulses in optical fiber amplifiers with gain dispersion and gain saturation. Physical Review A, 2008, 78, .	1.0	11
65	Accuracy of high-order lattice Boltzmann method for non-equilibrium gas flow. Journal of Fluid Mechanics, 2021, 907, .	1.4	11
66	Dark soliton beats in the time-varying background of Bose-Einstein condensates. Physical Review A, 2009, 80, .	1.0	10
67	Kinetic modelling of the quantum gases in the normal phase. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 1799-1823.	1.0	10
68	Applicability of the Boltzmann equation for a two-dimensional Fermi gas. Physical Review A, 2012, 85, .	1.0	10
69	The kinetic Shakhovâ€“Enskog model for non-equilibrium flow of dense gases. Journal of Fluid Mechanics, 2020, 883, .	1.4	10
70	Temperature jump and Knudsen layer in rarefied molecular gas. Physics of Fluids, 2022, 34, .	1.6	10
71	Do thermal effects cause the propulsion of bulk graphene material?. Nature Photonics, 2016, 10, 139-139.	15.6	8
72	Capturing the influence of intermolecular potential in rarefied gas flows by a kinetic model with velocity-dependent collision frequency. Journal of Fluid Mechanics, 2022, 942, .	1.4	8

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73	Comment on â€œFeshbach resonance and growth of a Bose-Einstein condensateâ€. Physical Review A, 2007, 75, .	1.0	7
74	Temperature retrieval error in Rayleigh-Brillouin scattering using Tentiâ€™s S6 kinetic model. AIP Conference Proceedings, 2016, , .	0.3	7
75	Controllable exact self-similar evolution of the Boseâ€“Einstein condensate. New Journal of Physics, 2008, 10, 023021.	1.2	5
76	Theory of self-similar propagation of two coupled optical pulses in nonlinear optical fiber amplifiers: Coexistence and separation. Physical Review A, 2009, 80, .	1.0	5
77	Numerical investigation of the radial quadrupole and scissors modes in trapped gases. Europhysics Letters, 2012, 97, 16003.	0.7	5
78	Coherent Rayleigh-Brillouin scattering: Influence of the intermolecular potential. , 2014, , .		5
79	A fast-converging scheme for the phonon Boltzmann equation with dual relaxation times. Journal of Computational Physics, 2022, 467, 111436.	1.9	5
80	INFLUENCE OF THE INITIAL PHASE PROFILE ON THE ASYMPTOTIC SELF-SIMILAR PARABOLIC DYNAMICS. Journal of Nonlinear Optical Physics and Materials, 2009, 18, 709-721.	1.1	4
81	Dark soliton in the Boseâ€“Einstein condensates with nonlinearity and harmonic potential managements. Physics Letters, Section A: General, Atomic and Solid State Physics, 2010, 374, 944-947.	0.9	3
82	A fast spectral method for the Uehling-Uhlenbeck equation for quantum gas mixtures: Homogeneous relaxation and transport coefficients. Journal of Computational Physics, 2019, 399, 108924.	1.9	1