Michael A Gallis

List of Publications by Year
in descending order

56 papers	1,357 citations	394421 19 h-index	345221 36 g-index
58 all docs	58 docs citations	58 times ranked	707 citing authors

#	Article	IF	Citations
1	Direct simulation Monte Carlo on petaflop supercomputers and beyond. Physics of Fluids, 2019, 31, .	4.0	163
2	Accuracy and efficiency of the sophisticated direct simulation Monte Carlo algorithm for simulating noncontinuum gas flows. Physics of Fluids, 2009, 21, .	4.0	93
3	An experimental assembly for precise measurement of thermal accommodation coefficients. Review of Scientific Instruments, 2011, 82, 035120.	1.3	86
4	Direct simulation Monte Carlo: The quest for speed. AIP Conference Proceedings, 2014, , .	0.4	86
5	An approach for simulating the transport of spherical particles in a rarefied gas flow via the direct simulation Monte Carlo method. Physics of Fluids, 2001, 13, 3482-3492.	4.0	77
6	Molecular-Level Simulations of Turbulence and Its Decay. Physical Review Letters, 2017, 118, 064501.	7.8	72
7	*Ab initio*-informed maximum entropy modeling of rovibrational relaxation and state-specific dissociation with application to the $O_2 + O$ system. Journal of Chemical Physics, 2016, 144, 174302.	3.0	67
8	Direct simulation Monte Carlo convergence behavior of the hard-sphere-gas thermal conductivity for Fourier heat flow. Physics of Fluids, 2006, 18, 077102.	4.0	64
9	Direct simulation Monte Carlo investigation of the Rayleigh-Taylor instability. Physical Review Fluids, 2016, 1, .	2.5	59
10	Normal solutions of the Boltzmann equation for highly nonequilibrium Fourier flow and Couette flow. Physics of Fluids, 2006, 18, 017104.	4.0	57
11	Molecular gas dynamics observations of Chapman-Enskog behavior and departures therefrom in nonequilibrium gases. Physical Review E, 2004, 69, 042201.	2.1	52
12	Direct simulation Monte Carlo investigation of the Richtmyer-Meshkov instability. Physics of Fluids, 2015, 27, .	4.0	51
13	Investigation of the ellipsoidal-statistical Bhatnagarâ€"Grossâ€"Krook kinetic model applied to gas-phase transport of heat and tangential momentum between parallel walls. Physics of Fluids, 2011, 23, .	4.0	42
14	Effect of collisionâ€‘partner selection schemes on the accuracy and efficiency of the direct simulation Monte Carlo method. International Journal for Numerical Methods in Fluids, 2011, 67, 1057-1072.	1.6	32
15	Effect of *O*$_2$ + *O*â€ˆ*ab initio* and Morse additive pairwise potentials on dissociation and relaxation rates for nonequilibrium flow calculations. Physics of Fluids, 2015, 27, .	4.0	29
16	Empirical slip and viscosity model performance for microscale gas flow. International Journal for Numerical Methods in Fluids, 2005, 49, 1169-1191.	1.6	27
17	Calculations of the near-wall thermophoretic force in rarefied gas flow. Physics of Fluids, 2002, 14, 4290-4301.	4.0	26
18	Nonequilibrium thermal radiation from air shock layers modeled with direct simulation Monte Carlo. Journal of Thermophysics and Heat Transfer, 1994, 8, 765-772.	1.6	21

#	Article	IF	Citations
19	Atomic species radiation from air modeled with direct simulation Monte Carlo method. Journal of Thermophysics and Heat Transfer, 1995, 9, 456-463.	1.6	21
20	Navier-Stokes Equations Do Not Describe the Smallest Scales of Turbulence in Gases. Physical Review Letters, 2022, 128, 114501.	7.8	19
21	Assessment of Collisional-Energy-Based Models for Atmospheric Species Reactions in Hypersonic Flows. Journal of Thermophysics and Heat Transfer, 2010, 24, 241-253.	1.6	18
22	Maximum entropy analysis of chemical reaction energy dependence. Journal of Thermophysics and Heat Transfer, 1996, 10, 217-223.	1.6	17
23	The modeling of chemical reactions and thermochemical nonequilibrium in particle simulation computations. Physics of Fluids, 1998, 10, 1344-1358.	4.0	17
24	Measurement of Gas-Surface Accommodation. , 2008, , .		17
25	Turbulence at the edge of continuum. Physical Review Fluids, 2021, 6, .	2.5	17
26	Modelling of chemical reactions in hypersonic rarefied flow with the direct simulation Monte Carlo method. Journal of Fluid Mechanics, 1996, 312, 149-172.	3.4	16
27	A Generalized Approximation for the Thermophoretic Force on a Free-Molecular Particle. Aerosol Science and Technology, 2004, 38, 692-706.	3.1	15
28	Gas-kinetic simulation of sustained turbulence in minimal Couette flow. Physical Review Fluids, 2018, 3, .	2.5	12
29	DSMC Convergence Behavior for Fourier Flow. AIP Conference Proceedings, 2005, , .	0.4	9
30	DSMC Moving-Boundary Algorithms for Simulating MEMS Geometries with Opening and Closing Gaps. AIP Conference Proceedings, 2011, , .	0.4	9
31	Review of Code Validation Studies in High-Speed Low-Density Flows. Journal of Spacecraft and Rockets, 2000, 37, 8-20.	1.9	7
32	Efficient DSMC Collision-Partner Selection Schemes. AIP Conference Proceedings, 2011, , .	0.4	7
33	Direct simulation Monte Carlo investigation of hydrodynamic instabilities in gases. AIP Conference Proceedings, 2016, , .	0.4	7
34	DSMC Simulations of Fourier and Couette Flow: Chapman-Enskog Behavior and Departures Therefrom. AIP Conference Proceedings, 2005, , .	0.4	5
35	Nonzero-Concentration Boundary Condition for Advection-Diffusion Aerosol-Transport Modeling. Aerosol Science and Technology, 2008, 42, 829-831.	3.1	5
36	DSMC-Based Shear-Stressâ•Velocity-Slip Boundary Condition for Navier-Stokes Couette-Flow Simulations. AIP Conference Proceedings, 2011, , .	0.4	5

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37	Effect of slip on vortex shedding from a circular cylinder in a gas flow. Physical Review Fluids, 2021, 6, .	2.5	5
38	Comparison of computations and experiments for nonequilibrium flow expansions around a blunted cone. , 1996, , .		4
39	An Improved-Accuracy DSMC Algorithm. , 2008, , .		3
40	Nanoparticle Knudsen layers in gas-filled microscale geometries. Physical Review E, 2008, 77, 036302.	2.1	3
41	Simulation of chemically reacting flowfields around a 70-deg spherically blunted cone. Journal of Spacecraft and Rockets, 1995, 32, 581-587.	1.9	2
42	The effect of plasmas on the aerodynamic performance of vehicles. , 1998, , .		2
43	Molecular-Level Simulations of Compressible Turbulence. , 2020, , .		2
44	Enforcing detailed balance in the Borgnakkeâ€"Larsen redistribution method with temperature dependent relaxation models. Physics of Fluids, 2022, 34, 066118.	4.0	2
45	Comparison of maximum entropy direct simulation Monte Carlo code with flowfield measurements. AIAA Journal, 1996, 34, 1378-1385.	2.6	1
46	A collective collision operator for DSMC. AIP Conference Proceedings, 2001, , .	0.4	1
47	Comment on "Thermophoresis of a Near-Wall Particle at Great Knudsen Numbers". Aerosol Science and Technology, 2003, 37, 547-549.	3.1	1
48	DSMC Predictions of Non-equilibrium Reaction Rates. , 2011, , .		1
49	Graeme A. Bird. Physics of Fluids, 2019, 31, 110401.	4.0	1
50	Direct simulation of chemical deposition of silicon. , 1996, , .		0
51	New ionization model for the direct simulation Monte Carlo method. , 1996, , .		0
52	A review of code validation studies in high-speed low-density flows. , 1998, , .		0
53	Thermophoresis in Rarefied Gas Flows. AIP Conference Proceedings, 2003, , .	0.4	0
54	Nanoparticle Aerosols Form Knudsen Layers at Walls. , 2008, , .		0

#	ARTICLE	IF	CITATIONS
55	Applying the Direct Simulation Monte Carlo (DSMC) Method to Gas-Filled MEMS Devices. Computational and Experimental Methods in Structures, 2008, , 81-119.	0.3	0
56	DSMC simulations of turbulent flows at moderate Reynolds numbers. AIP Conference Proceedings, 2019, , .	0.4	0