David R Emerson

List of Publications by Citations

92 papers	2,557 citations	25 h-index	49 g-index
100 ext. papers	2,872 ext. citations	2.9 avg, IF	5.12 L-index

#	Paper	IF	Citations
92	Modes of reaction front propagation from hot spots. *Combustion and Flame*, **2003**, 133, 63-74	5.3	235
91	Velocity boundary condition at solid walls in rarefied gas calculations. *Physical Review E*, **2004**, 70, 017302	2.4	175
90	A high-order moment approach for capturing non-equilibrium phenomena in the transition regime. *Journal of Fluid Mechanics*, **2009**, 636, 177-216	3.7	143
89	Continuous cell washing and mixing driven by an ultrasound standing wave within a microfluidic channel. *Lab on A Chip*, **2004**, 4, 446-52	7.2	135
88	Lattice Boltzmann simulation of rarefied gas flows in microchannels. *Physical Review E*, **2005**, 71, 047702	2.4	128
87	Challenges in Modeling Gas-Phase Flow in Microchannels: From Slip to Transition. *Heat Transfer Engineering*, **2006**, 27, 3-12	1.7	126
86	Biomimetic design of microfluidic manifolds based on a generalised Murray's law. *Lab on A Chip*, **2006**, 6, 447-54	7.2	123
85	Capturing Knudsen layer phenomena using a lattice Boltzmann model. *Physical Review E*, **2006**, 74, 046704	2.4	115
84	A computational strategy for the regularized 13 moment equations with enhanced wall-boundary conditions. *Journal of Computational Physics*, **2007**, 225, 263-283	4.1	80
83	dsmcFoam+: An OpenFOAM based direct simulation Monte Carlo solver. *Computer Physics Communications*, **2018**, 224, 22-43	4.2	72
82	Optimal design of microfluidic networks using biologically inspired principles. *Microfluidics and Nanofluidics*, **2008**, 4, 179-191	2.8	71
81	Investigation of Heat and Mass Transfer in a Lid-Driven Cavity Under Nonequilibrium Flow Conditions. *Numerical Heat Transfer, Part B: Fundamentals*, **2010**, 58, 287-303	1.3	70
80	Numerical and experimental study of a droplet-based PCR chip. *Microfluidics and Nanofluidics*, **2007**, 3, 611-621	2.8	70
79	An optimal migration algorithm for dynamic load balancing. *Concurrency and Computation: Practice and Experience*, **1998**, 10, 467-483		66
78	Gas Flow in Microchannels – A Lattice Boltzmann Method Approach. *Journal of Statistical Physics*, **2005**, 121, 257-267	1.5	55
77	Lattice Boltzmann modelling Knudsen layer effect in non-equilibrium flows. *Europhysics Letters*, **2008**, 83, 40008	1.6	51
76	Effects of incomplete surface accommodation on non-equilibrium heat transfer in cavity flow: A parallel DSMC study. *Computers and Fluids*, **2011**, 45, 197-201	2.8	49

75	Inverted velocity profiles in rarefied cylindrical Couette gas flow and the impact of the accommodation coefficient. *Physics of Fluids*, **2005**, 17, 047102	4.4	48
74	Lattice Boltzmann models for nonequilibrium gas flows. *Physical Review E*, **2008**, 77, 046701	2.4	47
73	Isothermal slip flow over curved surfaces. *Vacuum*, **2004**, 76, 73-81	3.7	46
72	Nonplanar oscillatory shear flow: From the continuum to the free-molecular regime. *Physics of Fluids*, **2007**, 19, 107105	4.4	32
71	Analysis of the slip coefficient and defect velocity in the Knudsen layer of a rarefied gas using the linearized moment equations. *Physical Review E*, **2010**, 81, 016313	2.4	30
70	Modelling thermal flow in the transition regime using a lattice Boltzmann approach. *Europhysics Letters*, **2007**, 77, 30003	1.6	30
69	An analysis of induced pressure fields in electroosmotic flows through microchannels. *Journal of Colloid and Interface Science*, **2004**, 275, 670-8	9.3	30
68	Near-wall effects in rarefied gas micro-flows: some modern hydrodynamic approaches. *International Journal of Heat and Fluid Flow*, **2007**, 28, 37-43	2.4	26
67	Hybrid molecular-continuum simulations of water flow through carbon nanotube membranes of realistic thickness. *Microfluidics and Nanofluidics*, **2015**, 19, 997-1010	2.8	25
66	Effects of Rarefaction on Cavity Flow in the Slip Regime. *Journal of Computational and Theoretical Nanoscience*, **2007**, 4, 817-822	0.3	23
65	The effect of Knudsen layers on rarefied cylindrical Couette gas flows. *Microfluidics and Nanofluidics*, **2013**, 14, 31-43	2.8	20
64	TELEMAC: An efficient hydrodynamics suite for massively parallel architectures. *Computers and Fluids*, **2011**, 51, 30-34	2.8	20
63	Numerical assessment of subgrid scale models for scalar transport in large-eddy simulations of hydrogen-enriched fuels. *International Journal of Hydrogen Energy*, **2014**, 39, 7173-7189	6.7	19
62	Numerical investigation of the effects of fuel variability on the dynamics of syngas impinging jet flames. *Fuel*, **2013**, 103, 646-662	7.1	19
61	Kramers problem and the Knudsen minimum: a theoretical analysis using a linearized 26-moment approach. *Continuum Mechanics and Thermodynamics*, **2009**, 21, 345-360	3.5	19
60	Recent advances in computational fluid dynamics relevant to the modelling of pesticide flow on leaf surfaces. *Pest Management Science*, **2010**, 66, 2-9	4.6	17
59	Particle Separation in Microfluidic Devices 3/4 SPLITT Fractionation and Microfluidics. *Current Analytical Chemistry*, **2005**, 1, 345-354	1.7	17
58	Simulation of thermal transpiration flow using a high-order moment method. *International Journal of Modern Physics C*, **2014**, 25, 1450061	1.1	15

57	Biomimetic design of artificial micro-vasculatures for tissue engineering. *ATLA Alternatives To Laboratory Animals*, **2010**, 38 Suppl 1, 67-79	2.1	15
56	On the turbulence amplification in shock-wave/turbulent boundary layer interaction. *Journal of Fluid Mechanics*, **2020**, 897,	3.7	13
55	High-Speed Rarefied Flow Past a Rotating Cylinder: The Inverse Magnus Effect. *AIAA Journal*, **2016**, 54, 1670-1681	2.1	13
54	Non-equilibrium effects on flow past a circular cylinder in the slip and early transition regime. *Journal of Fluid Mechanics*, **2019**, 860, 654-681	3.7	12
53	A design rule for constant depth microfluidic networks for power-law fluids. *Microfluidics and Nanofluidics*, **2015**, 19, 737-749	2.8	11
52	An evaluation of noise reduction algorithms for particle-based fluid simulations in multi-scale applications. *Journal of Computational Physics*, **2016**, 325, 380-394	4.1	11
51	NUMERICAL INVESTIGATIONS OF CAVITATION AROUND A HIGH SPEED SUBMARINE USING OPENFOAM WITH LES. *International Journal of Computational Methods*, **2012**, 09, 1250040	1.1	11
50	Modeling oscillatory flows in the transition regime using a high-order moment method. *Microfluidics and Nanofluidics*, **2011**, 10, 389-401	2.8	11
49	mdFoam+: Advanced molecular dynamics in OpenFOAM. *Computer Physics Communications*, **2018**, 224, 1-21	4.2	10
48	Numerical simulations of turbulent jet flames with non-premixed combustion of hydrogen-enriched fuels. *Computers and Fluids*, **2013**, 88, 688-701	2.8	10
47	Numerical investigation of nanoporous evaporation using direct simulation Monte Carlo. *Physical Review Fluids*, **2019**, 4,	2.8	10
46	Numerical Simulation of Ion Transport in a Nano-Electrospray Ion Source at Atmospheric Pressure. *Journal of the American Society for Mass Spectrometry*, **2018**, 29, 600-612	3.5	9
45	Analysis of non-physical slip velocity in lattice Boltzmann simulations using the bounce-back scheme. *Journal of Computational Science*, **2018**, 28, 476-482	3.4	9
44	Nonequilibrium gaseous heat transfer in pressure-driven plane Poiseuille flow. *Physical Review E*, **2013**, 88, 013018	2.4	9
43	Evaluating constitutive scaling models for application to compressible microflows. *International Journal of Heat and Mass Transfer*, **2008**, 51, 1281-1292	4.9	9
42	An improved parallel compact scheme for domain-decoupled simulation of turbulence. *International Journal for Numerical Methods in Fluids*, **2019**, 90, 479-500	1.9	8
41	Extended Thermodynamic Approach for Non-Equilibrium Gas Flow. *Communications in Computational Physics*, **2013**, 13, 1330-1356	2.4	8
40	Flow separation control over a rounded ramp with spanwise alternating wall actuation. *Physics of Fluids*, **2019**, 31, 015101	4.4	8

39	A comparative study of boundary conditions for lattice Boltzmann simulations of high Reynolds number flows. *Computers and Fluids*, **2017**, 156, 1-8	2.8	7
38	Low-Frequency 3D Wave Propagation Modeling of the 12 May 2008 Mw 7.9 Wenchuan Earthquake. *Bulletin of the Seismological Society of America*, **2010**, 100, 2561-2573	2.3	7
37	A hybrid approach to couple the discrete velocity method and Method of Moments for rarefied gas flows. *Journal of Computational Physics*, **2020**, 410, 109397	4.1	6
36	A novel coupling of noise reduction algorithms for particle flow simulations. *Journal of Computational Physics*, **2016**, 321, 169-190	4.1	6
35	A new extended Reynolds equation for gas bearing lubrication based on the method of moments. *Microfluidics and Nanofluidics*, **2016**, 20, 1	2.8	6
34	A parallel compact-TVD method for compressible fluid dynamics employing shared and distributed-memory paradigms. *Computers and Fluids*, **2011**, 45, 172-176	2.8	6
33	KNUDSEN'S PERMEABILITY CORRECTION FOR GAS FLOW IN TIGHT POROUS MEDIA USING THE R26 MOMENT METHOD. *Journal of Porous Media*, **2017**, 20, 787-805	2.9	6
32	An iterative machine-learning framework for RANS turbulence modeling. *International Journal of Heat and Fluid Flow*, **2021**, 90, 108822	2.4	6
31	On the degree of boundary slip over nonplanar surfaces. *Microfluidics and Nanofluidics*, **2013**, 15, 807-816	2.8	5
30	Role of surface shape on boundary slip and velocity defect. *Physical Review E*, **2012**, 86, 016314	2.4	5
29	General theory for flow optimisation of split-flow thin fractionation. *Journal of Chromatography A*, **2003**, 1010, 87-94	4.5	5
28	High Speed Aerodynamic Characteristics of Rarefied Flow past Stationary and Rotating Cylinders **2015**,		4
27	Effect of flow development region and fringing magnetic force field on annular split-flow thin fractionation. *Journal of Chromatography A*, **2004**, 1042, 137-45	4.5	4
26	The communication performance of the Cray T3D and its effect on iterative solvers. *Parallel Computing*, **1996**, 22, 829-844	1	4
25	Evaporation from arbitrary nanoporous membrane configurations: An effective evaporation coefficient approach. *Physics of Fluids*, **2021**, 33, 032022	4.4	4
24	Effect of Large Scale 3-D Structures on the Flow Around a Heated Cylinder at Low Reynolds Number. *Flow, Turbulence and Combustion*, **2018**, 101, 553-577	2.5	4
23	Uncertainty Quantification at the Molecular□Continuum Model Interface. *Fluids*, **2017**, 2, 12	1.6	3
22	Linearized-moment analysis of the temperature jump and temperature defect in the Knudsen layer of a rarefied gas. *Physical Review E*, **2014**, 89, 063020	2.4	3

21	Recent Advances in Electrowetting Microdroplet Technologies **2012**, 77-116		3
20	On the inverse Magnus effect for flow past a rotating cylinder **2016**,		3
19	Modelling Thermally Induced Non-Equilibrium Gas Flows by Coupling Kinetic and Extended Thermodynamic Methods. *Entropy*, **2019**, 21,	2.8	2
18	Parallel Compressible Viscous Flow Simulations Using FLASH Code: Implementation for Arbitrary 3D Geometries. *Procedia Engineering*, **2013**, 61, 52-56		2
17	Pressure correction methods based on Krylov subspace conception for solving incompressible Navier–Stokes problems. *International Journal for Numerical Methods in Fluids*, **2004**, 45, 1249-1268	1.9	2
16	Lattice Boltzmann modeling of fluid-particle interaction based on a two-phase mixture representation. *Physical Review E*, **2019**, 100, 063311	2.4	2
15	Computation of Aerodynamic Forces Under Nonequilibrium Conditions: Flow Past a Spinning Cylinder. *AIAA Journal*, **2018**, 56, 4219-4224	2.1	2
14	Simulation of the head-disk interface gap using a hybrid multi-scale method. *Microfluidics and Nanofluidics*, **2018**, 22, 1	2.8	2
13	Numerical Simulation of Flow Field and Ion Transport for Different Ion Source Sampling Interfaces of a Mass Spectrometer. *Journal of the American Society for Mass Spectrometry*, **2020**, 31, 840-855	3.5	1
12	Sleeve leakage gas impact on fuel assembly temperature distribution. *International Journal of Computational Fluid Dynamics*, **2016**, 30, 419-424	1.2	1
11	Discrete Boltzmann model of shallow water equations with polynomial equilibria. *International Journal of Modern Physics C*, **2018**, 29, 1850080	1.1	1
10	LES of the Flow Inside the Lower Plenum of an Advanced Gas-Cooled Reactor with Conjugate Heat Transfer. *Procedia Engineering*, **2013**, 61, 192-197		1
9	Parallel Navier–Stokes simulations for high speed compressible flow past arbitrary geometries using FLASH. *Computers and Fluids*, **2015**, 110, 27-35	2.8	1
8	Calculation of flow in transition duct using second-order closure and wall functions. *AIAA Journal*, **1996**, 34, 2437-2439	2.1	1
7	Thermal transients in a U-bend. *International Journal of Heat and Mass Transfer*, **2020**, 148, 119039	4.9	1
6	Coupling Molecular Dynamics and Direct Simulation Monte Carlo using a general and high-performance code coupling library. *Computers and Fluids*, **2020**, 213, 104726	2.8	1
5	Modelling the Neutronics of a Molten Salt Fast Reactor Using DYN3D-MG for the Investigation of the Application of Frozen Wall Technology **2018**,		1
4	Modelling Frozen Salt Films in a Molten Salt Fast Reactor **2018**,		1

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3	Curvature dependence of heat transfer at a fluid-solid interface. *Physical Review E*, **2018**, 98,	2.4	1
2	On the numerical modelling of frozen walls in a molten salt fast reactor. *Nuclear Engineering and Design*, **2019**, 355, 110290	1.8	
1	INFLUENCE OF THE ELECTRIC DOUBLE LAYER ON INDUCED PRESSURE FIELDS AND DEVELOPMENT LENGTHS IN ELECTRO-OSMOTIC FLOWS. *Modern Physics Letters B*, **2005**, 19, 1655-1658	1.6	