Duncan A Lockerby

List of Publications by Year
in descending order

95 papers	2,093 citations	201575 27 h-index	265120 42 g-index
97 all docs	97 docs citations	97 times ranked	1413 citing authors

#	Article	IF	Citations
1	Velocity boundary condition at solid walls in rarefied gas calculations. Physical Review E, 2004, 70, 017303.	0.8	206
2	Water transport through (7,7) carbon nanotubes of different lengths using molecular dynamics. Microfluidics and Nanofluidics, 2012, 12, 257-264.	1.0	101
3	Capturing the Knudsen Layer in Continuum-Fluid Models of Nonequilibrium Gas Flows. AIAA Journal, 2005, 43, 1391-1393.	1.5	95
4	New directions in fluid dynamics: non-equilibrium aerodynamic and microsystem flows. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 2967-2988.	1.6	84
5	The usefulness of higher-order constitutive relations for describing the Knudsen layer. Physics of Fluids, 2005, 17, 100609.	1.6	78
6	On the modelling of isothermal gas flows at the microscale. Journal of Fluid Mechanics, 2008, 604, 235-261.	1.4	76
7	A multiscale method for micro/nano flows of high aspect ratio. Journal of Computational Physics, 2013, 233, 400-413.	1.9	58
8	High-resolution Burnett simulations of micro Couette flow and heat transfer. Journal of Computational Physics, 2003, 188, 333-347.	1.9	56
9	Water transport through carbon nanotubes with defects. Molecular Simulation, 2012, 38, 781-785.	0.9	53
10	Multiscale simulation of water flow through laboratory-scale nanotube membranes. Journal of Membrane Science, 2018, 567, 115-126.	4.1	49
11	The effect of gaseous slip on microscale heat transfer: An extended Graetz problem. International Journal of Heat and Mass Transfer, 2006, 49, 2502-2513.	2.5	47
12	Surface contamination of cars: A review. Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, 2017, 231, 1160-1176.	1.1	42
13	Modeling and Design of Microjet Actuators. AIAA Journal, 2004, 42, 220-227.	1.5	41
14	A hybrid moleculară€“continuum method for unsteady compressible multiscale flows. Journal of Fluid Mechanics, 2015, 768, 388-414.	1.4	41
15	Revisiting the Rayleighâ€“Plateau instability for the nanoscale. Journal of Fluid Mechanics, 2019, 861, .	1.4	40
16	Molecular dynamics pre-simulations for nanoscale computational fluid dynamics. Microfluidics and Nanofluidics, 2015, 18, 461-474.	1.0	39
17	Bouncing off the Walls: The Influence of Gas-Kinetic and van der Waals Effects in Drop Impact. Physical Review Letters, 2020, 124, 084501.	2.9	37
18	Mean-field kinetic theory approach to evaporation of a binary liquid into vacuum. Physical Review Fluids, 2018, 3, .	1.0	35

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19	Time-step coupling for hybrid simulations of multiscale flows. Journal of Computational Physics, 2013, 237, 344-365.	1.9	33
20	A lumped-parameter model of the cerebrospinal system for investigating arterial-driven flow in posttraumatic syringomyelia. Medical Engineering and Physics, 2011, 33, 874-882.	0.8	32
21	Near-wall effects in rarefied gas micro-flows: some modern hydrodynamic approaches. International Journal of Heat and Fluid Flow, 2007, 28, 37-43.	1.1	31
22	Switching criteria for hybrid rarefied gas flow solvers. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2009, 465, 1581-1598.	1.0	31
23	Modelling turbulent skin-friction control using linearized Navierâ€“Stokes equations. Journal of Fluid Mechanics, 2012, 702, 403-414.	1.4	28
24	Hybrid continuumâ€“molecular modelling of multiscale internal gas flows. Journal of Computational Physics, 2013, 255, 558-571.	1.9	28
25	Hybrid molecular-continuum simulations of water flow through carbon nanotube membranes of realistic thickness. Microfluidics and Nanofluidics, 2015, 19, 997-1010.	1.0	28
26	A hybrid molecular-continuum simulation method for incompressible flows in micro/nanofluidic networks. Microfluidics and Nanofluidics, 2013, 15, 541-557.	1.0	27
27	Fluid simulations with atomistic resolution: a hybrid multiscale method with field-wise coupling. Journal of Computational Physics, 2013, 255, 149-165.	1.9	27
28	The FADE mass-stat: A technique for inserting or deleting particles in molecular dynamics simulations. Journal of Chemical Physics, 2014, 140, 074110.	1.2	27
29	Numerical Simulation of the Interaction of Microactuators and Boundary Layers. AIAA Journal, 2002, 40, 67-73.	1.5	24
30	Generalizing Murray's law: An optimization principle for fluidic networks of arbitrary shape and scale. Journal of Applied Physics, 2015, 118, .	1.1	24
31	Molecular simulation of thin liquid films: Thermal fluctuations and instability. Physical Review E, 2019, 100, 023108.	0.8	24
32	Effective mean free path and viscosity of confined gases. Physics of Fluids, 2019, 31, .	1.6	24
33	Computing the Near-Wall Region in Gas Micro- and Nanofluidics: Critical Knudsen Layer Phenomena. Journal of Computational and Theoretical Nanoscience, 2007, 4, 807-813.	0.4	24
34	Lifetime of a Nanodroplet: Kinetic Effects and Regime Transitions. Physical Review Letters, 2019, 123, 154501.	2.9	23
35	Multiscale simulation of non-isothermal microchannel gas flows. Journal of Computational Physics, 2014, 270, 532-543.	1.9	22
36	Control of Sublayer Streaks Using Microjet Actuators. AIAA Journal, 2005, 43, 1878-1886.	1.5	21

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37	Simulation of rear surface contamination for a simple bluff body. Journal of Wind Engineering and Industrial Aerodynamics, 2017, 165, 13-22.	1.7	21
38	Dynamics of liquid nanothreads: Fluctuation-driven instability and rupture. Physical Review Fluids, 2020, 5, .	1.0	19
39	A Laplacian-based algorithm for non-isothermal atomistic-continuum hybrid simulation of micro and nano-flows. Computer Methods in Applied Mechanics and Engineering, 2013, 264, 81-94.	3.4	17
40	Nanoscale thin-film flows with thermal fluctuations and slip. Physical Review E, 2020, 102, 053105.	0.8	17
41	Is Helmholtz Resonance a Problem for Micro-jet Actuators?. Flow, Turbulence and Combustion, 2007, 78, 205-222.	1.4	16
42	The Pathogenesis of Syringomyelia: A Re-Evaluation of the Elastic-Jump Hypothesis. Journal of Biomechanical Engineering, 2009, 131, 044503.	0.6	16
43	Velocity distribution function of spontaneously evaporating atoms. Physical Review Fluids, 2020, 5, .	1.0	16
44	Multiscale simulation of heat transfer in a rarefied gas. International Journal of Heat and Fluid Flow, 2014, 50, 114-125.	1.1	15
45	mdFoam+: Advanced molecular dynamics in OpenFOAM. Computer Physics Communications, 2018, 224, 1-21.	3.0	15
46	Numerical investigation of nanoporous evaporation using direct simulation Monte Carlo. Physical Review Fluids, 2019, 4, .	1.0	15
47	Numerical simulation of a confined cavitating gas bubble driven by ultrasound. Physics of Fluids, 2021, 33, .	1.6	15
48	A Critical Review Of The Drag Force On A Sphere In The Transition Flow Regime. AIP Conference Proceedings, 2005, , .	0.3	14
49	Fundamental solutions to moment equations for the simulation of microscale gas flows. Journal of Fluid Mechanics, 2016, 806, 413-436.	1.4	14
50	Fundamental solutions to the regularised 13-moment equations: efficient computation of three-dimensional kinetic effects. Journal of Fluid Mechanics, 2017, 833, .	1.4	14
51	Boundary conditions for molecular dynamics simulations of water transport through nanotubes. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2014, 228, 186-195.	1.1	13
52	Evaporation-driven vapour microflows: analytical solutions from moment methods. Journal of Fluid Mechanics, 2018, 841, 962-988.	1.4	13
53	Thermophoresis of a spherical particle: modelling through moment-based, macroscopic transport equations. Journal of Fluid Mechanics, 2019, 862, 312-347.	1.4	13
54	Thermal capillary wave growth and surface roughening of nanoscale liquid films. Journal of Fluid Mechanics, 2021, 915, .	1.4	13

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55	Enhancing nano-scale computational fluid dynamics with molecular pre-simulations: Unsteady problems and design optimisation. Computers and Fluids, 2015, 115, 46-53.	1.3	12
56	Liquid slip over gas nanofilms. Physical Review Fluids, 2017, 2, .	1.0	12
57	Importance sampling variance reduction for the Fokkerâ€“Planck rarefied gas particle method. Journal of Computational Physics, 2016, 325, 116-128.	1.9	11
58	Asynchronous coupling of hybrid models for efficient simulation of multiscale systems. Journal of Computational Physics, 2015, 284, 261-272.	1.9	10
59	Efficient simulation of non-classical liquidâ€“vapour phase-transition flows: a method of fundamental solutions. Journal of Fluid Mechanics, 2021, 919, .	1.4	10
60	Multiscale simulation of nanofluidic networks of arbitrary complexity. Microfluidics and Nanofluidics, 2015, 18, 841-858.	1.0	9
61	Fluidâ€“structure interactions in a cylindrical layered wave guide with application in the spinal column to syringomyelia. Journal of Fluids and Structures, 2017, 70, 464-499.	1.5	7
62	Accelerating multiscale modelling of fluids with on-the-fly Gaussian process regression. Microfluidics and Nanofluidics, 2018, 22, 139.	1.0	7
63	Evaporation from arbitrary nanoporous membrane configurations: An effective evaporation coefficient approach. Physics of Fluids, 2021, 33, .	1.6	7
64	Efficient moment method for modeling nanoporous evaporation. Physical Review Fluids, 2022, 7, .	1.0	7
65	The atomistic-continuum hybrid taxonomy and the hybrid-hybrid approach. International Journal for Numerical Methods in Engineering, 2014, 98, 534-546.	1.5	6
66	Fluctuation-driven dynamics in nanoscale thin-film flows: Physical insights from numerical investigations. Physical Review Fluids, 2022, 7, .	1.0	6
67	Numerical solution of the Falkner-Skan equation using third-order and high-order-compact finite difference schemes. Journal of the Brazilian Society of Mechanical Sciences and Engineering, 2011, 33, 381-392.	0.8	5
68	Coupling heterogeneous continuum-particle fields to simulate non-isothermal microscale gas flows. International Journal of Heat and Mass Transfer, 2016, 98, 712-727.	2.5	5
69	Coupling Molecular Dynamics and Direct Simulation Monte Carlo using a general and high-performance code coupling library. Computers and Fluids, 2020, 213, 104726.	1.3	5
70	Relaxation of Thermal Capillary Waves for Nanoscale Liquid Films on Anisotropic-Slip Substrates. Langmuir, 2021, 37, 8667-8676.	1.6	5
71	Geometric and constitutive dependence of Maxwellâ€™s velocity slip boundary condition. AIP Conference Proceedings, 2005, , .	0.3	4
72	A wall-function approach to incorporating Knudsen-layer effects in gas micro flow simulations. AIP Conference Proceedings, 2005, , .	0.3	4

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73	A Particle-Continuum Hybrid Framework for Transport Phenomena and Chemical Reactions in Multicomponent Systems at the Micro and Nanoscale. Journal of Heat Transfer, 2015, 137, .	1.2	4
74	A generalized optimization principle for asymmetric branching in fluidic networks. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20160451.	1.0	4
75	Numerical simulation of the interaction of microactuators and boundary layers. AIAA Journal, 2002, 40, 67-73.	1.5	4
76	Simulation of the head-disk interface gap using a hybrid multi-scale method. Microfluidics and Nanofluidics, 2018, 22, 1.	1.0	3
77	Comment on â€œApplying a second-kind boundary integral equation for surface tractions in Stokes flowâ€• Journal of Computational Physics, 2020, 401, 109007.	1.9	2
78	Efficient simulation of rarefied gas flow past a particle: A boundary element method for the linearized G13 equations. Physics of Fluids, 2022, 34, .	1.6	2
79	An experimental study into the effects of streamwise and spanwise acceleration in a turbulent boundary layer. Experiments in Fluids, 2013, 54, 1.	1.1	1
80	An Atomistic-Continuum Hybrid Approach for Modelling Transport Phenomena at the Micro- and Nano-Scale. , 2013, , .		1
81	Syringomyelia and the Fluid-Structure Interactions of a Cerebrospinal Waveguide. , 2014, , .		1
82	Nanostructured carbon membranes for breakthrough filtration applications: advancing the science, engineering and design. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150035.	1.6	1
83	Variation of molecular mean free path in confined geometries. AIP Conference Proceedings, 2019, , .	0.3	1
84	Near-Wall Scaling of the Navier-Stokes Constitutive Relations for Accurate Micro Gas Flow Simulations. , 2007, , .		1
85	Integration over discrete closed surfaces using the Method of Fundamental Solutions. Engineering Analysis With Boundary Elements, 2022, 136, 232-237.	2.0	1
86	Switching Criteria for Hybrid Rarefied Gas Flow Solvers. , 2008, , .		0
87	Modelling turbulent skin-friction control using linearised Navier-Stokes equations. Journal of Physics: Conference Series, 2011, 318, 042026.	0.3	0
88	Editorial introduction: modelling the mesoscale. IMA Journal of Applied Mathematics, 2011, 76, 643-649.	0.8	0
89	A Multi-Scale Method for Modeling Nanochannel Flows. , 2012, , .		0
90	Efficient Time-Step Coupling For Hybrid Continuum/Molecular Modelling of Unsteady Micro-Scale Gas Flows. Journal of Physics: Conference Series, 2012, 362, 012044.	0.3	0

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91	Multiscale Simulation of Internal Rarefied Gas Flows. , 2013, , .		0
92	Multiscale Simulation of Nano-Fluidic Networks. , 2014, , .		0
93	Multiscale Simulation of Knudsen-Pump Channel Flows. , 2014, , .		0
94	Design of Multiscale Nanofluidic Networks. , 2015, , .		0
95	The (Atomistic-Continuum) Hybrid Taxonomy and the Hybrid-Hybrid Approach. , 2013, , .		0