Matthew K Borg

List of Publications by Year
in descending order

65 papers	1,607 citations	218677 26 h-index	315739 38 g-index
65 all docs	65 docs citations	65 times ranked	1397 citing authors

#	Article	IF	Citations
1	Water transport through (7,7) carbon nanotubes of different lengths using molecular dynamics. Microfluidics and Nanofluidics, 2012, 12, 257-264.	2.2	101
2	Open-Source Direct Simulation MonteÂCarlo Chemistry Modeling for Hypersonic Flows. AIAA Journal, 2015, 53, 1670-1680.	2.6	84
3	Wetting and evaporation of salt-water nanodroplets: A molecular dynamics investigation. Physical Review E, 2015, 92, 052403.	2.1	81
4	A DSMC investigation of gas flows in micro-channels with bends. Computers and Fluids, 2013, 71, 261-271.	2.5	68
5	Droplet Coalescence is Initiated by Thermal Motion. Physical Review Letters, 2019, 122, 104501.	7.8	61
6	A multiscale method for micro/nano flows of high aspect ratio. Journal of Computational Physics, 2013, 233, 400-413.	3.8	58
7	Water transport through carbon nanotubes with defects. Molecular Simulation, 2012, 38, 781-785.	2.0	53
8	Electric fields can control the transport of water in carbon nanotubes. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150025.	3.4	50
9	Electrowetting Controls the Deposit Patterns of Evaporated Salt Water Nanodroplets. Langmuir, 2016, 32, 1542-1549.	3.5	49
10	Multiscale simulation of water flow through laboratory-scale nanotube membranes. Journal of Membrane Science, 2018, 567, 115-126.	8.2	49
11	Dynamics of Nanoscale Droplets on Moving Surfaces. Langmuir, 2013, 29, 6936-6943.	3.5	46
12	Controllers for imposing continuum-to-molecular boundary conditions in arbitrary fluid flow geometries. Molecular Simulation, 2010, 36, 745-757.	2.0	44
13	Benchmark numerical simulations of rarefied non-reacting gas flows using an open-source DSMC code. Computers and Fluids, 2015, 120, 140-157.	2.5	44
14	A critical assessment of the line tension determined by the modified Youngâ€™s equation. Physics of Fluids, 2018, 30, .	4.0	44
15	Multiscale simulation of dynamic wetting. International Journal of Heat and Mass Transfer, 2017, 115, 886-896.	4.8	43
16	A hybrid molecularâ€"continuum method for unsteady compressible multiscale flows. Journal of Fluid Mechanics, 2015, 768, 388-414.	3.4	41
17	Molecular dynamics pre-simulations for nanoscale computational fluid dynamics. Microfluidics and Nanofluidics, 2015, 18, 461-474.	2.2	39
18	Time-step coupling for hybrid simulations of multiscale flows. Journal of Computational Physics, 2013, 237, 344-365.	3.8	33

#	Article	IF	Citations
19	Mechanical properties of pristine and nanoporous graphene. Molecular Simulation, 2016, 42, 1502-1511.	2.0	32
20	Dense gas flow simulations in ultra-tight confinement. Physics of Fluids, 2020, 32, .	4.0	31
21	Multiscale simulation of enhanced water flow in nanotubes. MRS Bulletin, 2017, 42, 294-299.	3.5	30
22	Hybrid continuumâ€"molecular modelling of multiscale internal gas flows. Journal of Computational Physics, 2013, 255, 558-571.	3.8	28
23	Hybrid molecular-continuum simulations of water flow through carbon nanotube membranes of realistic thickness. Microfluidics and Nanofluidics, 2015, 19, 997-1010.	2.2	28
24	A hybrid molecular-continuum simulation method for incompressible flows in micro/nanofluidic networks. Microfluidics and Nanofluidics, 2013, 15, 541-557.	2.2	27
25	Fluid simulations with atomistic resolution: a hybrid multiscale method with field-wise coupling. Journal of Computational Physics, 2013, 255, 149-165.	3.8	27
26	The FADE mass-stat: A technique for inserting or deleting particles in molecular dynamics simulations. Journal of Chemical Physics, 2014, 140, 074110.	3.0	27
27	Mechanical Stability of Surface Nanobubbles. Langmuir, 2019, 35, 9325-9333.	3.5	27
28	Effective mean free path and viscosity of confined gases. Physics of Fluids, 2019, 31, .	4.0	24
29	Generation of initial molecular dynamics configurations in arbitrary geometries and in parallel. Molecular Simulation, 2007, 33, 1199-1212.	2.0	19
30	Acoustothermal Nucleation of Surface Nanobubbles. Nano Letters, 2021, 21, 1267-1273.	9.1	19
31	Dynamics of Nanodroplets on Vibrating Surfaces. Langmuir, 2018, 34, 11898-11904.	3.5	18
32	Surface-Controlled Water Flow in Nanotube Membranes. ACS Applied Materials & Interfaces, 2019, 11, 1689-1698.	8.0	18
33	Rarefied flow separation in microchannel with bends. Journal of Fluid Mechanics, 2020, 901, .	3.4	18
34	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.	6.6	17
35	A multiscale volume of fluid method with self-consistent boundary conditions derived from molecular dynamics. Physics of Fluids, 2021, 33, .	4.0	16
36	Multiscale simulation of heat transfer in a rarefied gas. International Journal of Heat and Fluid Flow, 2014, 50, 114-125.	2.4	15

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37	Enhanced nanoparticle rejection in aligned boron nitride nanotube membranes. Nanoscale, 2020, 12, 21138-21145.	5.6	15
38	Acoustothermal Atomization of Water Nanofilms. Physical Review Letters, 2018, 121, 104502.	7.8	14
39	Molecular physics of jumping nanodroplets. Nanoscale, 2020, 12, 20631-20637.	5.6	14
40	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.	2.1	13
41	Self-diffusivity of dense confined fluids. Physics of Fluids, 2021, 33, .	4.0	13
42	Enhancing nano-scale computational fluid dynamics with molecular pre-simulations: Unsteady problems and design optimisation. Computers and Fluids, 2015, 115, 46-53.	2.5	12
43	Shock-induced collapse of surface nanobubbles. Soft Matter, 2021, 17, 6884-6898.	2.7	12
44	Pore-scale gas flow simulations by the DSBGK and DVM methods. Computers and Fluids, 2021, 226, 105017.	2.5	12
45	Sub-nanometre pore adsorption of methane in kerogen. Chemical Engineering Journal, 2021, 426, 130984.	12.7	12
46	Liquid slip over gas nanofilms. Physical Review Fluids, 2017, 2, .	2.5	12
47	Asynchronous coupling of hybrid models for efficient simulation of multiscale systems. Journal of Computational Physics, 2015, 284, 261-272.	3.8	10
48	Multiscale simulation of nanofluidic networks of arbitrary complexity. Microfluidics and Nanofluidics, 2015, 18, 841-858.	2.2	9
49	Untangling the physics of water transport in boron nitride nanotubes. Nanoscale, 2021, 13, 18096-18102.	5.6	8
50	Methane scattering on porous kerogen surfaces and its impact on mesopore transport in shale. Fuel, 2022, 316, 123259.	6.4	8
51	Forced oscillation dynamics of surface nanobubbles. Journal of Chemical Physics, 2020, 153, 184705.	3.0	7
52	The atomistic-continuum hybrid taxonomy and the hybrid-hybrid approach. International Journal for Numerical Methods in Engineering, 2014, 98, 534-546.	2.8	6
53	Coupling heterogeneous continuum-particle fields to simulate non-isothermal microscale gas flows. International Journal of Heat and Mass Transfer, 2016, 98, 712-727.	4.8	5
54	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, .	2.1	4

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55	Impact of surface nanostructure and wettability on interfacial ice physics. Journal of Chemical Physics, 2021, 155, 234307.	3.0	4
56	A Hybrid Particle-Continuum Framework. , 2008, , .		2
57	Molecular Dynamics Simulations of Liquid Flow in and Around Carbon Nanotubes. , 2010, , .		2
58	Accounting for rotational non-equilibrium effects in subsonic DSMC boundary conditions. Journal of Physics: Conference Series, 2012, 362, 012016.	0.4	2
59	An Atomistic-Continuum Hybrid Approach for Modelling Transport Phenomena at the Micro- and Nano-Scale. , 2013, , .		1
60	Variation of molecular mean free path in confined geometries. AIP Conference Proceedings, 2019, , .	0.4	1
61	A Multi-Scale Method for Modeling Nanochannel Flows. , 2012, , .		0
62	Efficient Time-Step Coupling For Hybrid Continuum/Molecular Modelling of Unsteady Micro-Scale Gas Flows. Journal of Physics: Conference Series, 2012, 362, 012044.	0.4	0
63	Multiscale Simulation of Internal Rarefied Gas Flows. , 2013, , .		0
64	Multiscale Simulation of Nano-Fluidic Networks. , 2014, , .		0
65	Design of Multiscale Nanofluidic Networks. , 2015, , .		0