Ming-Chih Lai

List of Publications by Year
in descending order

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58 papers	2,398 citations	279798 23 h-index	197818 49 g-index
58 all docs	58 docs citations	58 times ranked	1508 citing authors

#	Article	IF	Citations
1	An Immersed Boundary Method with Formal Second-Order Accuracy and Reduced Numerical Viscosity. Journal of Computational Physics, 2000, 160, 705-719.	3.8	734
2	The Immersed Interface Method for the Navierâ€“Stokes Equations with Singular Forces. Journal of Computational Physics, 2001, 171, 822-842.	3.8	293
3	An immersed boundary technique for simulating complex flows with rigid boundary. Computers and Fluids, 2007, 36, 313-324.	2.5	175
4	An immersed boundary method for interfacial flows with insoluble surfactant. Journal of Computational Physics, 2008, 227, 7279-7293.	3.8	94
5	A Method for Computing Nearly Singular Integrals. SIAM Journal on Numerical Analysis, 2001, 38, 1902-1925.	2.3	78
6	A remark on jump conditions for the three-dimensional Navier-Stokes equations involving an immersed moving membrane. Applied Mathematics Letters, 2001, 14, 149-154.	2.7	71
7	An augmented approach for Stokes equations with a discontinuous viscosity and singular forces. Computers and Fluids, 2007, 36, 622-635.	2.5	67
8	Simulating the dynamics of inextensible vesicles by the penalty immersed boundary method. Journal of Computational Physics, 2010, 229, 4840-4853.	3.8	63
9	Fast direct solvers for Poisson equation on 2D polar and spherical geometries. Numerical Methods for Partial Differential Equations, 2002, 18, 56-68.	3.6	58
10	Numerical Simulation of Moving Contact Lines with Surfactant by Immersed Boundary Method. Communications in Computational Physics, 2010, 8, 735-757.	1.7	45
11	A hybrid immersed boundary and immersed interface method for electrohydrodynamic simulations. Journal of Computational Physics, 2015, 282, 47-61.	3.8	43
12	New Formulations for Interface Problems in Polar Coordinates. SIAM Journal of Scientific Computing, 2003, 25, 224-245.	2.8	41
13	An immersed boundary method for simulating the dynamics of three-dimensional axisymmetric vesicles in Navierâ€“Stokes flows. Journal of Computational Physics, 2014, 257, 670-686.	3.8	40
14	New Numerical Results for the Surface Quasi-Geostrophic Equation. Journal of Scientific Computing, 2012, 50, 1-28.	2.3	39
15	A note on finite difference discretizations for Poisson equation on a disk. Numerical Methods for Partial Differential Equations, 2001, 17, 199-203.	3.6	37
16	Numerical simulations of two-dimensional foam by the immersed boundary method. Journal of Computational Physics, 2010, 229, 5194-5207.	3.8	35
17	Amoeboid swimming in a channel. Soft Matter, 2016, 12, 7470-7484.	2.7	34
18	Fast direct solver for the biharmonic equation on a disk and its application to incompressible flows. Applied Mathematics and Computation, 2005, 164, 679-695.	2.2	32

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19	A conservative scheme for solving coupled surface-bulk convectionâ€“diffusion equations with an application to interfacial flows with soluble surfactant. Journal of Computational Physics, 2014, 257, 1-18.	3.8	31
20	A Simple Compact Fourth-Order Poisson Solver on Polar Geometry. Journal of Computational Physics, 2002, 182, 337-345.	3.8	29
21	An immersed boundary method for simulating vesicle dynamics in three dimensions. Journal of Computational Physics, 2016, 322, 125-141.	3.8	25
22	Vesicle electrohydrodynamic simulations by coupling immersed boundary and immersed interface method. Journal of Computational Physics, 2016, 317, 66-81.	3.8	24
23	A well-conditioned augmented system for solving Navierâ€“Stokes equations in irregular domains. Journal of Computational Physics, 2009, 228, 2616-2628.	3.8	23
24	An augmented method for free boundary problems with moving contact lines. Computers and Fluids, 2010, 39, 1033-1040.	2.5	23
25	A formally fourth-order accurate compact scheme for 3D Poisson equation in cylindrical coordinates. Journal of Computational and Applied Mathematics, 2007, 201, 175-181.	2.0	18
26	A simple implementation of the immersed interface methods for Stokes flows with singular forces. Computers and Fluids, 2008, 37, 99-106.	2.5	18
27	Numerical study of viscosity and inertial effects on tank-treading and tumbling motions of vesicles under shear flow. Physical Review E, 2012, 86, 066321.	2.1	18
28	A simple Dufort-Frankel-type scheme for the Gross-Pitaevskii equation of Bose-Einstein condensates on different geometries. Numerical Methods for Partial Differential Equations, 2004, 20, 624-638.	3.6	17
29	A fast iterative solver for the variable coefficient diffusion equation on a disk. Journal of Computational Physics, 2005, 208, 196-205.	3.8	16
30	A Coupled Immersed Interface and Level Set Method for Three-Dimensional Interfacial Flows with Insoluble Surfactant. Communications in Computational Physics, 2014, 15, 451-469.	1.7	16
31	Fast solvers for 3D Poisson equations involving interfaces in a finite or the infinite domain. Journal of Computational and Applied Mathematics, 2006, 191, 106-125.	2.0	15
32	New Finite Difference Methods Based on IIM for Inextensible Interfaces in Incompressible Flows. East Asian Journal on Applied Mathematics, 2011, 1, 155-171.	0.9	12
33	The Immersed Boundary Method for Two-Dimensional Foam with Topological Changes. Communications in Computational Physics, 2012, 12, 479-493.	1.7	12
34	A Fractional Step Immersed Boundary Method for Stokes Flow with an Inextensible Interface Enclosing a Solid Particle. SIAM Journal of Scientific Computing, 2012, 34, B692-B710.	2.8	12
35	An immersed boundary projection method for simulating the inextensible vesicle dynamics. Journal of Computational Physics, 2020, 408, 109277.	3.8	12
36	Convergence of the MAC Scheme for the Stokes/Darcy Coupling Problem. Journal of Scientific Computing, 2018, 76, 1216-1251.	2.3	10

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37	Numerical simulations of three-dimensional foam by the immersed boundary method. Journal of Computational Physics, 2014, 269, 1-21.	3.8	8
38	A coupled immersed boundary and immersed interface method for interfacial flows with soluble surfactant. Computers and Fluids, 2018, 168, 201-215.	2.5	8
39	An immersed boundary method for simulating Newtonian vesicles in viscoelastic fluid. Journal of Computational Physics, 2019, 376, 1009-1027.	3.8	8
40	A penalty immersed boundary method for viscoelastic particulate flows. Journal of Non-Newtonian Fluid Mechanics, 2018, 258, 32-44.	2.4	7
41	An Unconditionally Energy Stable Immersed Boundary Method with Application to Vesicle Dynamics. East Asian Journal on Applied Mathematics, 2013, 3, 247-262.	0.9	6
42	A short note on Navierâ€“Stokes flows with an incompressible interface and its approximations. Applied Mathematics Letters, 2017, 65, 1-6.	2.7	6
43	A coupled grid based particle and implicit boundary integral method for two-phase flows with insoluble surfactant. Journal of Computational Physics, 2019, 395, 747-764.	3.8	6
44	A coupled immersed interface and grid based particle method for three-dimensional electrohydrodynamic simulations. Journal of Computational Physics, 2019, 398, 108903.	3.8	6
45	A simple projection method for the coupled Navier-Stokes and Darcy flows. Computational Geosciences, 2019, 23, 21-33.	2.4	6
46	Unconditionally Energy Stable Schemes for the Inextensible Interface Problem with Bending. SIAM Journal of Scientific Computing, 2019, 41, B649-B668.	2.8	5
47	An Unconditionally Energy Stable Penalty Immersed Boundary Method for Simulating the Dynamics of an Inextensible Interface Interacting with a Solid Particle. Journal of Scientific Computing, 2015, 64, 289-316.	2.3	4
48	Fourth-order finite difference scheme for the incompressible Navier-Stokes equations in a disk. International Journal for Numerical Methods in Fluids, 2003, 42, 909-922.	1.6	3
49	New Conservative Finite Volume Element Schemes for the Modified Regularized Long Wave Equation. Advances in Applied Mathematics and Mechanics, 2017, 9, 250-271.	1.2	3
50	An immersed boundary projection method for incompressible interface simulations in 3D flows. Journal of Computational Physics, 2021, 430, 110090.	3.8	3
51	Effects of surfactant solubility on the hydrodynamics of a viscous drop in a dc electric field. Physical Review Fluids, 2021, 6, .	2.5	3
52	Spectrally Accurate Algorithm for Points Redistribution on Closed Curves. SIAM Journal of Scientific Computing, 2020, 42, A3030-A3054.	2.8	2
53	An immersed interface method for the Navierâ€Stokes equations on irregular domains. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1025401-1025402.	0.2	1
54	Simulation of a Soap Film MÃ¶bius Strip Transformation. East Asian Journal on Applied Mathematics, 2017, 7, 615-628.	0.9	1

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55	A PARAMETRIC DERIVATION OF THE SURFACTANT TRANSPORT EQUATION ALONG A DEFORMING FLUID INTERFACE. , 2008, , .		1
56	A stable and accurate immersed boundary method for simulating vesicle dynamics via spherical harmonics. Journal of Computational Physics, 2021, 449, 110785.	3.8	1
57	Numerical simulations of vesicle and bubble dynamics in two-dimensional four-roll mill flows. Physical Review E, 2017, 95, 053105.	2.1	0
58	An immersed boundary projection method for solving the fluid-rigid body interaction problems. Journal of Computational Physics, 2022, , 111367.	3.8	0