Zhilin Li

List of Publications by Year
in descending order

119 papers	5,792 citations	136950 32 h-index	79698 73 g-index
131 all docs	131 docs citations	131 times ranked	2194 citing authors

#	Article	IF	Citations
1	The Immersed Interface Method for Elliptic Equations with Discontinuous Coefficients and Singular Sources. SIAM Journal on Numerical Analysis, 1994, 31, 1019-1044.	2.3	1,113
2	Immersed Interface Methods for Stokes Flow with Elastic Boundaries or Surface Tension. SIAM Journal of Scientific Computing, 1997, 18, 709-735.	2.8	353
3	A smoothing technique for discrete delta functions with application to immersed boundary method in moving boundary simulations. Journal of Computational Physics, 2009, 228, 7821-7836.	3.8	324
4	New Cartesian grid methods for interface problems using the finite element formulation. Numerische Mathematik, 2003, 96, 61-98.	1.9	321
5	The Immersed Interface Method for the Navierâ€“Stokes Equations with Singular Forces. Journal of Computational Physics, 2001, 171, 822-842.	3.8	293
6	The immersed interface method using a finite element formulation. Applied Numerical Mathematics, 1998, 27, 253-267.	2.1	225
7	A Fast Iterative Algorithm for Elliptic Interface Problems. SIAM Journal on Numerical Analysis, 1998, 35, 230-254.	2.3	223
8	A Hybrid Method for Moving Interface Problems with Application to the Heleâ€“Shaw Flow. Journal of Computational Physics, 1997, 134, 236-252.	3.8	210
9	Immersed-Interface Finite-Element Methods for Elliptic Interface Problems with Nonhomogeneous Jump Conditions. SIAM Journal on Numerical Analysis, 2008, 46, 472-495.	2.3	165
10	A level-set method for interfacial flows with surfactant. Journal of Computational Physics, 2006, 212, 590-616.	3.8	162
11	Level-set function approach to an inverse interface problem. Inverse Problems, 2001, 17, 1225-1242.	2.0	158
12	Maximum Principle Preserving Schemes for Interface Problems with Discontinuous Coefficients. SIAM Journal of Scientific Computing, 2001, 23, 339-361.	2.8	137
13	AN OVERVIEW OF THE IMMERSED INTERFACE METHOD AND ITS APPLICATIONS. Taiwanese Journal of Mathematics, 2003, 7, 1.	0.4	93
14	The immersed finite volume element methods for the elliptic interface problems. Mathematics and Computers in Simulation, 1999, 50, 63-76.	4.4	92
15	The Immersed Interface/Multigrid Methods for Interface Problems. SIAM Journal of Scientific Computing, 2002, 24, 463-479.	2.8	90
16	A Numerical Study of Electro-migration Voiding by Evolving Level Set Functions on a Fixed Cartesian Grid. Journal of Computational Physics, 1999, 152, 281-304.	3.8	74
17	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
18	Convergence analysis of the immersed interface method. IMA Journal of Numerical Analysis, 1999, 19, 583-608.	2.9	68

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19	An augmented approach for Stokes equations with a discontinuous viscosity and singular forces. Computers and Fluids, 2007, 36, 622-635.	2.5	67
20	Immersed interface methods for moving interface problems. Numerical Algorithms, 1997, 14, 269-293.	1.9	62
21	Three-dimensional elliptic solvers for interface problems and applications. Journal of Computational Physics, 2003, 184, 215-243.	3.8	56
22	Achieving energy conservation in Poissonâ€“Boltzmann molecular dynamics: Accuracy and precision with finite-difference algorithms. Chemical Physics Letters, 2009, 468, 112-118.	2.6	50
23	A fast finite difference method for biharmonic equations on irregular domains and its application to an incompressible Stokes flow. Advances in Computational Mathematics, 2008, 29, 113-133.	1.6	48
24	Force and deformation on branching rudiments: cleaving between hypotheses. Biomechanics and Modeling in Mechanobiology, 2002, 1, 5-16.	2.8	47
25	An immersed interface method for solving incompressible viscous flows with piecewise constant viscosity across a moving elastic membrane. Journal of Computational Physics, 2008, 227, 9955-9983.	3.8	43
26	New Formulations for Interface Problems in Polar Coordinates. SIAM Journal of Scientific Computing, 2003, 25, 224-245.	2.8	41
27	Reactive Autophobic Spreading of Drops. Journal of Computational Physics, 2002, 183, 335-366.	3.8	37
28	A Numerical Method for Solving Elasticity Equations with Interfaces. Communications in Computational Physics, 2012, 12, 595-612.	1.7	37
29	A Symmetric and Consistent Immersed Finite Element Method for Interface Problems. Journal of Scientific Computing, 2014, 61, 533-557.	2.3	37
30	Exploring accurate Poissonâ€“Boltzmann methods for biomolecular simulations. Computational and Theoretical Chemistry, 2013, 1024, 34-44.	2.5	35
31	A Fast Finite Differenc Method For Solving Navier-Stokes Equations on Irregular Domains. Communications in Mathematical Sciences, 2003, 1, 180-196.	1.0	35
32	Accurate Solution and Gradient Computation for Elliptic Interface Problems with Variable Coefficients. SIAM Journal on Numerical Analysis, 2017, 55, 570-597.	2.3	34
33	Mechanics of mesenchymal contribution to clefting force in branching morphogenesis. Biomechanics and Modeling in Mechanobiology, 2008, 7, 417-426.	2.8	26
34	Numerical Poissonâ€“Boltzmann model for continuum membrane systems. Chemical Physics Letters, 2013, 555, 274-281.	2.6	26
35	Higher-Order, Cartesian Grid Based Finite Difference Schemes for Elliptic Equations on Irregular Domains. SIAM Journal of Scientific Computing, 2005, 27, 346-367.	2.8	24
36	A well-conditioned augmented system for solving Navierâ€“Stokes equations in irregular domains. Journal of Computational Physics, 2009, 228, 2616-2628.	3.8	23

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37	An augmented method for free boundary problems with moving contact lines. Computers and Fluids, 2010, 39, 1033-1040.	2.5	23
38	Analysis of Network Structure of Urban Bike-Sharing System: A Case Study Based on Real-Time Data of a Public Bicycle System. Sustainability, 2019, 11, 5425.	3.2	23
39	Numerical analysis of interfacial two-dimensional Stokes flow with discontinuous viscosity and variable surface tension. International Journal for Numerical Methods in Fluids, 2001, 37, 525-540.	1.6	22
40	Immersed finite elements for optimal control problems of elliptic PDEs with interfaces. Journal of Computational Physics, 2015, 298, 305-319.	3.8	21
41	Crack jump conditions for elliptic problems. Applied Mathematics Letters, 1999, 12, 81-88.	2.7	20
42	Numerical Study of Surfactant-Laden Drop-Drop Interactions. Communications in Computational Physics, 2011, 10, 453-473.	1.7	18
43	Exploring a charge-central strategy in the solution of Poisson's equation for biomolecular applications. Physical Chemistry Chemical Physics, 2013, 15, 129-141.	2.8	17
44	An immersed finite volume element method for 2D PDEs with discontinuous coefficients and non-homogeneous jump conditions. Computers and Mathematics With Applications, 2015, 70, 89-103.	2.7	17
45	A Fourier finite volume element method for solving two-dimensional quasi-geostrophic equations on a sphere. Applied Numerical Mathematics, 2013, 71, 1-13.	2.1	16
46	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
47	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
48	Spatiotemporal characteristics of green travel: A classification study on a public bicycle system. Journal of Cleaner Production, 2019, 238, 117892.	9.3	15
49	A new augmented immersed finite element method without using SVD interpolations. Numerical Algorithms, 2016, 71, 395-416.	1.9	14
50	An Adaptive Mesh Refinement Strategy for Immersed Boundary/Interface Methods. Communications in Computational Physics, 2012, 12, 515-527.	1.7	13
51	An augmented Cartesian grid method for Stokesâ€“Darcy fluidâ€“structure interactions. International Journal for Numerical Methods in Engineering, 2016, 106, 556-575.	2.8	13
52	A least squares augmented immersed interface method for solving Navierâ€“Stokes and Darcy coupling equations. Computers and Fluids, 2018, 167, 384-399.	2.5	13
53	An explicit jump immersed interface method for two-phase Navierâ€“Stokes equations with interfaces. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 2317-2328.	6.6	12
54	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

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55	Simplified immersed interface methods for elliptic interface problems with straight interfaces. Numerical Methods for Partial Differential Equations, 2012, 28, 188-203.	3.6	12
56	On convergence of the immersed boundary method for elliptic interface problems. Mathematics of Computation, 2014, 84, 1169-1188.	2.1	12
57	A Cartesian grid nonconforming immersed finite element method for planar elasticity interface problems. Computers and Mathematics With Applications, 2017, 73, 404-418.	2.7	12
58	Interface conditions for Stokes equations with a discontinuous viscosity and surface sources. Applied Mathematics Letters, 2006, 19, 229-234.	2.7	11
59	A Finite Difference Method and Analysis for 2D Nonlinear Poissonâ€"Boltzmann Equations. Journal of Scientific Computing, 2007, 30, 61-81.	2.3	11
60	A multi-scale method for dynamics simulation in continuum solvent models. I: Finite-difference algorithm for Navierâ€"Stokes equation. Chemical Physics Letters, 2014, 616-617, 67-74.	2.6	11
61	Short Communication: A numerical method for diffusive transport with moving boundaries and discontinuous material properties. International Journal for Numerical and Analytical Methods in Geomechanics, 1997, 21, 653-662.	3.3	10
62	Theoretical and numerical analysis on a thermo-elastic system with discontinuities. Journal of Computational and Applied Mathematics, 1998, 92, 37-58.	2.0	10
63	A semi-implicit augmented IIM for Navierâ€"Stokes equations with open, traction, or free boundary conditions. Journal of Computational Physics, 2015, 297, 182-193.	3.8	10
64	A gradientÂrecoveryâ€"based adaptive finite element method for convectionâ€diffusionâ€reaction equations on surfaces. International Journal for Numerical Methods in Engineering, 2019, 120, 901-917.	2.8	10
65	An FE-FD Method for Anisotropic Elliptic Interface Problems. SIAM Journal of Scientific Computing, 2020, 42, B1041-B1066.	2.8	10
66	A new parameter free partially penalized immersed finite element and the optimal convergence analysis. Numerische Mathematik, 2022, 150, 1035-1086.	1.9	10
67	A study of numerical methods for the level set approach. Applied Numerical Mathematics, 2007, 57, 837-846.	2.1	9
68	Adaptive mesh refinement techniques for the immersed interface method applied to flow problems. Computers and Structures, 2013, 122, 249-258.	4.4	9
69	A high-order source removal finite element method for a class of elliptic interface problems. Applied Numerical Mathematics, 2018, 130, 112-130.	2.1	9
70	On MultiScale ADI Methods for Parabolic PDEs with a Discontinuous Coefficient. Multiscale Modeling and Simulation, 2018, 16, 1623-1647.	1.6	9
71	Quadratic hyper-surface kernel-free least squares support vector regression. Intelligent Data Analysis, 2021, 25, 265-281.	0.9	9
72	A High Order Compact FD Framework for Elliptic BVPs Involving Singular Sources, Interfaces, and Irregular Domains. Journal of Scientific Computing, 2021, 88, 1.	2.3	9

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73	A Sparse Grid Stochastic Collocation Method for Elliptic Interface Problems with Random Input. Journal of Scientific Computing, 2016, 67, 262-280.	2.3	8
74	A direct IIM approach for two-phase Stokes equations with discontinuous viscosity on staggered grids. Computers and Fluids, 2018, 172, 549-563.	2.5	8
75	A direct method for accurate solution and gradient computations for elliptic interface problems. Numerical Algorithms, 2019, 80, 709-740.	1.9	8
76	How to obtain an accurate gradient for interface problems?. Journal of Computational Physics, 2020, 405, 109070.	3.8	8
77	A new FV scheme and fast cell-centered multigrid solver for 3D anisotropic diffusion equations with discontinuous coefficients. Journal of Computational Physics, 2022, 449, 110794.	3.8	8
78	Approximate solution of singular integro-differential equations by reduction over Faber-Laurent polynomials. Differential Equations, 2004, 40, 1764-1769.	0.7	7
79	Solving a Nonlinear Problem in Magneto-Rheological Fluids Using the Immersed Interface Method. Journal of Scientific Computing, 2003, 19, 253-266.	2.3	6
80	The local tangential lifting method for moving interface problems on surfaces with applications. Journal of Computational Physics, 2021, 431, 110146.	3.8	6
81	Prioritization of pesticides based on daily dietary exposure potential as determined from the SHEDS model. Food and Chemical Toxicology, 2016, 96, 167-173.	3.6	5
82	An Augmented Method for 4th Order PDEs with Discontinuous Coefficients. Journal of Scientific Computing, 2017, 73, 968-979.	2.3	5
83	Error analysis of the immersed interface method for Stokes equations with an interface. Applied Mathematics Letters, 2018, 83, 207-211.	2.7	5
84	On an New Algorithm for Function Approximation with Full Accuracy in the Presence of Discontinuities Based on the Immersed Interface Method. Journal of Scientific Computing, 2018, 75, 1500-1534.	2.3	5
85	Non-parallel hyperplanes ordinal regression machine. Knowledge-Based Systems, 2021, 216, 106593.	7.1	5
86	Fourth order compact FD methods for convection diffusion equations with variable coefficients. Applied Mathematics Letters, 2021, 121, 107413.	2.7	5
87	Pressure Jump Conditions for Stokes Equations with Discontinuous Viscosity in 2D and 3D. Methods and Applications of Analysis, 2006, 13, 199-214.	0.5	5
88	Optimal convergence of three iterative methods based on nonconforming finite element discretization for 2D/3D MHD equations. Numerical Algorithms, 2022, 90, 1117-1151.	1.9	5
89	The Sensitivity Analysis for the Flow Past Obstacles Problem with Respect to the Reynolds Number. Advances in Applied Mathematics and Mechanics, 2012, 4, 21-35.	1.2	4
90	Simulation of Longitudinal Exposure Data with Varianceâ€Covariance Structures Based on Mixed Models. Risk Analysis, 2013, 33, 469-479.	2.7	4

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91	A Uniformly Stable Nonconforming FEM Based on Weighted Interior Penalties for Darcy-Stokes-Brinkman Equations. Numerical Mathematics, 2017, 10, 22-43.	1.3	4
92	Partially penalized IFE methods and convergence analysis for elasticity interface problems. Journal of Computational and Applied Mathematics, 2021, 382, 113059.	2.0	4
93	AN INTRODUCTION TO THE IMMERSED BOUNDARY AND THE IMMERSED INTERFACE METHODS. Lecture Notes Series, Institute for Mathematical Sciences, 2009, , 1-67.	0.2	3
94	An additive Schwarz preconditioner for the mortar-type rotated FEM for elliptic problems with discontinuous coefficients. Applied Numerical Mathematics, 2009, 59, 1657-1667.	2.1	3
95	Effective matrix-free preconditioning for the augmented immersed interface method. Journal of Computational Physics, 2015, 303, 295-312.	3.8	3
96	Some new analysis results for a class of interface problems. Mathematical Methods in the Applied Sciences, 2015, 38, 4530-4539.	2.3	3
97	Augmented immersed finite element methods for some elliptic partial differential equations. International Journal of Computer Mathematics, 2016, 93, 540-558.	1.8	3
98	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
99	An ADI-Yee's scheme for Maxwell's equations with discontinuous coefficients. Journal of Computational Physics, 2021, 438, 110356.	3.8	3
100	An immersed <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e971" altimg="si2.svg"><mml:mrow><mml:mi>C</mml:mi><mml:mi>R</mml:mi></mml:mrow></mml:math>-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e979" altimg="si3.svg"><mml:msub><mml:mrow><mml:mi>P</mml:mi></mml:mrow><mml:mrow><mml:mn>0</mml:mn></mml:mrow></mr element for Stokes interface problems and the optimal convergence analysis. Computer Methods in Ap	6.6	3
101	A Level Set-Boundary Element Method for Simulation of Dynamic Powder Consolidation of Metals. Lecture Notes in Computer Science, 2001, , 527-534.	1.3	2
102	Generalized Snell's Law for Weighted Minimal Surface in Heterogeneous Media. Methods and Applications of Analysis, 2003, 10, 199-214.	0.5	2
103	Fine numerical analysis of the crack-tip position for a Mumfordâ€“Shah minimizer. Interfaces and Free Boundaries, 2016, 18, 75-90.	0.8	2
104	Augmented Strategies for Interface and Irregular Domain Problems. Lecture Notes in Computer Science, 2005, , 66-79.	1.3	1
105	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
106	The IIM in polar coordinates and its application to electro capacitance tomography problems. Numerical Algorithms, 2011, 57, 405-423.	1.9	1
107	Accurate gradient computations at interfaces using finite element methods. International Journal of Applied Mathematics and Computer Science, 2017, 27, 527-537.	1.5	1
108	An Augmented IB Method & Analysis for Elliptic BVP on Irregular Domains. CMES - Computer Modeling in Engineering and Sciences, 2019, 119, 63-72.	1.1	1

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109	A Robin-Robin Domain Decomposition Method for a Stokes-Darcy Structure Interaction with a Locally Modified Mesh. Numerical Mathematics, 2014, 7, 435-446.	1.3	1
110	A new patch up technique for elliptic partial differential equation with irregularities. Journal of Computational and Applied Mathematics, 2022, 407, 113975.	2.0	1
111	Immersed Interface/Boundary Method. , 2015, , 667-676.		0
112	A parallel Robinâ€“Robin domain decomposition method for H(div)-elliptic problems. International Journal of Computer Mathematics, 2015, 92, 394-410.	1.8	0
113	The immersed interface method for axis-symmetric problems and application to the Heleâ€“Shaw flow. Applied Mathematics and Computation, 2015, 264, 179-197.	2.2	0
114	A generalized modulus-based Newton method for solving a class of non-linear complementarity problems with P-matrices. Numerical Algorithms, 0, , 1.	1.9	0
115	DROPLET SPREADING WITH SURFACTANT: MODELING AND SIMULATION. , 2002, , 263-263.		0
116	An augmented immersed interface method for moving structures with mass. Discrete and Continuous Dynamical Systems - Series B, 2012, 17, 1175-1184.	0.9	0
117	Some new finite difference methods for Helmholtz equations on irregular domains or with interfaces. Discrete and Continuous Dynamical Systems - Series B, 2012, 17, 1155-1174.	0.9	0
118	Numerical Solutions of the System of Singular Integro-Differential Equations in Classical HÃ¶lder Spaces. Advances in Applied Mathematics and Mechanics, 2012, 4, 737-750.	1.2	0
119	Numerical Validations of the Tangent Linear Model for the Lorenz Equations. CMES - Computer Modeling in Engineering and Sciences, 2019, 120, 83-104.	1.1	0