Konstantin Lipnikov

List of Publications by Year
in descending order

63 papers	3,350 citations	218662 26 h-index	144002 57 g-index
64 all docs	64 docs citations	64 times ranked	1158 citing authors

#	Article	IF	Citations
1	A FAMILY OF MIMETIC FINITE DIFFERENCE METHODS ON POLYGONAL AND POLYHEDRAL MESHES. Mathematical Models and Methods in Applied Sciences, 2005, 15, 1533-1551.	3.3	334
2	Mimetic finite difference method. Journal of Computational Physics, 2014, 257, 1163-1227.	3.8	332
3	Convergence of the Mimetic Finite Difference Method for Diffusion Problems on Polyhedral Meshes. SIAM Journal on Numerical Analysis, 2005, 43, 1872-1896.	2.3	297
4	Monotone finite volume schemes for diffusion equations on unstructured triangular and shape-regular polygonal meshes. Journal of Computational Physics, 2007, 227, 492-512.	3.8	217
5	The nonconforming virtual element method. ESAIM: Mathematical Modelling and Numerical Analysis, 2016, 50, 879-904.	1.9	192
6	Mimetic finite differences for elliptic problems. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 277-295.	1.9	163
7	Interpolation-free monotone finite volume method for diffusion equations on polygonal meshes. Journal of Computational Physics, 2009, 228, 703-716.	3.8	132
8	A new discretization methodology for diffusion problems on generalized polyhedral meshes. Computer Methods in Applied Mechanics and Engineering, 2007, 196, 3682-3692.	6.6	116
9	Local flux mimetic finite difference methods. Numerische Mathematik, 2009, 112, 115-152.	1.9	111
10	Arbitrary-Order Nodal Mimetic Discretizations of Elliptic Problems on Polygonal Meshes. SIAM Journal on Numerical Analysis, 2011, 49, 1737-1760.	2.3	95
11	Mimetic finite difference methods for diffusion equations on non-orthogonal non-conformal meshes. Journal of Computational Physics, 2004, 199, 589-597.	3.8	92
12	The Mimetic Finite Difference Method for Elliptic Problems. , 2014, , .		91
13	CONVERGENCE OF MIMETIC FINITE DIFFERENCE METHOD FOR DIFFUSION PROBLEMS ON POLYHEDRAL MESHES WITH CURVED FACES. Mathematical Models and Methods in Applied Sciences, 2006, 16, 275-297.	3.3	85
14	A monotone finite volume method for advectionâ€“diffusion equations on unstructured polygonal meshes. Journal of Computational Physics, 2010, 229, 4017-4032.	3.8	80
15	Mimetic finite difference method for the Stokes problem on polygonal meshes. Journal of Computational Physics, 2009, 228, 7215-7232.	3.8	77
16	The mimetic finite difference discretization of diffusion problem on unstructured polyhedral meshes. Journal of Computational Physics, 2006, 211, 473-491.	3.8	71
17	Verification benchmarks for single-phase flow in three-dimensional fractured porous media. Advances in Water Resources, 2021, 147, 103759.	3.8	59
18	Analysis of the monotonicity conditions in the mimetic finite difference method for elliptic problems. Journal of Computational Physics, 2011, 230, 2620-2642.	3.8	58

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19	Discontinuous Galerkin and mimetic finite difference methods for coupled Stokesâ€“Darcy flows on polygonal and polyhedral grids. Numerische Mathematik, 2014, 126, 321-360.	1.9	58
20	The mimetic finite difference method for the 3D magnetostatic field problems on polyhedral meshes. Journal of Computational Physics, 2011, 230, 305-328.	3.8	51
21	A multilevel multiscale mimetic (M3) method for two-phase flows in porous media. Journal of Computational Physics, 2008, 227, 6727-6753.	3.8	50
22	A Lagrangian staggered grid Godunov-like approach for hydrodynamics. Journal of Computational Physics, 2014, 259, 568-597.	3.8	50
23	High-order mimetic finite difference method for diffusion problems on polygonal meshes. Journal of Computational Physics, 2008, 227, 8841-8854.	3.8	49
24	A Mimetic Discretization of the Stokes Problem with Selected Edge Bubbles. SIAM Journal of Scientific Computing, 2010, 32, 875-893.	2.8	47
25	Error Analysis for a Mimetic Discretization of the Steady Stokes Problem on Polyhedral Meshes. SIAM Journal on Numerical Analysis, 2010, 48, 1419-1443.	2.3	41
26	A high-order mimetic method on unstructured polyhedral meshes for the diffusion equation. Journal of Computational Physics, 2014, 272, 360-385.	3.8	40
27	Anderson Acceleration for Nonlinear Finite Volume Scheme for Advection-Diffusion Problems. SIAM Journal of Scientific Computing, 2013, 35, A1120-A1136.	2.8	38
28	A framework for developing a mimetic tensor artificial viscosity for Lagrangian hydrocodes on arbitrary polygonal meshes. Journal of Computational Physics, 2010, 229, 7911-7941.	3.8	28
29	The mimetic finite difference method for elliptic and parabolic problems with a staggered discretization of diffusion coefficient. Journal of Computational Physics, 2016, 305, 111-126.	3.8	25
30	Effective shear viscosity and dynamics of suspensions of micro-swimmers from small to moderate concentrations. Journal of Mathematical Biology, 2011, 62, 707-740.	1.9	21
31	M-Adaptation in the mimetic finite difference method. Mathematical Models and Methods in Applied Sciences, 2014, 24, 1621-1663.	3.3	19
32	Coupling surface flow and subsurface flow in complex soil structures using mimetic finite differences. Advances in Water Resources, 2020, 144, 103701.	3.8	19
33	M-ADAPTATION METHOD FOR ACOUSTIC WAVE EQUATION ON SQUARE MESHES. Journal of Computational Acoustics, 2012, 20, 1250022.	1.0	18
34	Hessian-free metric-based mesh adaptation via geometry of interpolation error. Computational Mathematics and Mathematical Physics, 2010, 50, 124-138.	0.8	16
35	Second-order accurate monotone finite volume scheme for Richardsâ€™ equation. Journal of Computational Physics, 2013, 239, 123-137.	3.8	16
36	New preconditioning strategy for Jacobian-free solvers for variably saturated flows with Richardsâ€™ equation. Advances in Water Resources, 2016, 94, 11-22.	3.8	15

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37	Parallel adaptive solution of 3D boundary value problems by Hessian recovery. Computer Methods in Applied Mechanics and Engineering, 2003, 192, 1495-1513.	6.6	14
38	A mortar mimetic finite difference method on non-matching grids. Numerische Mathematik, 2005, 102, 203-230.	1.9	14
39	Mimetic discretization of two-dimensional magnetic diffusion equations. Journal of Computational Physics, 2013, 247, 1-16.	3.8	13
40	The arbitrary order mixed mimetic finite difference method for the diffusion equation. ESAIM: Mathematical Modelling and Numerical Analysis, 2016, 50, 851-877.	1.9	13
41	The mimetic finite difference method for the Landauâ€“Lifshitz equation. Journal of Computational Physics, 2017, 328, 109-130.	3.8	12
42	A high-order conservative remap for discontinuous Galerkin schemes on curvilinear polygonal meshes. Journal of Computational Physics, 2019, 399, 108931.	3.8	9
43	On the Reconstruction of Darcy Velocity in Finite-Volume Methods. Transport in Porous Media, 2013, 96, 337-351.	2.6	7
44	Generation of Quasi-Optimal Meshes Based on a Posteriori Error Estimates. , 2008, , 139-148.		7
45	Flow and Transport in Three-Dimensional Discrete Fracture Matrix Models using Mimetic Finite Difference on a Conforming Multi-Dimensional Mesh. Journal of Computational Physics, 2022, , 111396.	3.8	7
46	Adaptive Strategies in the Multilevel Multiscale Mimetic (M3) Method for Two-Phase Flows in Porous Media. Multiscale Modeling and Simulation, 2011, 9, 991-1016.	1.6	6
47	Mesh Infrastructure for Coupled Multiprocess Geophysical Simulations. Procedia Engineering, 2014, 82, 34-45.	1.2	6
48	Conservative high-order discontinuous Galerkin remap scheme on curvilinear polyhedral meshes. Journal of Computational Physics, 2020, 420, 109712.	3.8	6
49	A mimetic tensor artificial viscosity method for arbitrary polyhedral meshes. Procedia Computer Science, 2010, 1, 1921-1929.	2.0	5
50	A multiscale multilevel mimetic (M3) method for well-driven flows in porous media. Procedia Computer Science, 2010, 1, 771-779.	2.0	4
51	Edge-based a Posteriori Error Estimators for Generating Quasi-optimal Simplicial Meshes. Mathematical Modelling of Natural Phenomena, 2010, 5, 91-96.	2.4	4
52	Anisotropic Mesh Adaptation for Solution of Finite Element Problems Using Hierarchical Edge-Based Error Estimates. , 2009, , 595-610.		4
53	Monotonicity Conditions in the Mimetic Finite Difference Method. Springer Proceedings in Mathematics, 2011, , 653-661.	0.5	4
54	On optimal convergence rate of finite element solutions of boundary value problems on adaptive anisotropic meshes. Mathematics and Computers in Simulation, 2011, 81, 1949-1961.	4.4	3

#	Article	IF	Citations
55	A Multilevel Multiscale Mimetic (M3) Method for an Anisotropic Infiltration Problem. Lecture Notes in Computer Science, 2009, , 685-694.	1.3	2
56	Discretization of Mixed Formulations of Elliptic Problems on Polyhedral Meshes. Lecture Notes in Computational Science and Engineering, 2016, , 311-342.	0.3	2
57	Benchmark 3D: Mimetic Finite Difference Method for Generalized Polyhedral Meshes. Springer Proceedings in Mathematics, 2011, , 1035-1042.	0.5	2
58	The error-minimization-based rezone strategy for arbitrary Lagrangian-Eulerian methods. Numerical Methods for Partial Differential Equations, 2006, 22, 617-637.	3.6	1
59	Consistent Nonlinear Solver for Solute Transport in Variably Saturated Porous Media. Springer Proceedings in Mathematics and Statistics, 2017, , 427-435.	0.2	1
60	A MULTILEVEL MULTISCALE MIMETIC (M3) METHOD FOR AN ANISOTROPIC INFILTRATION PROBLEM. International Journal for Multiscale Computational Engineering, 2011, 9, 243-256.	1.2	1
61	On discrete boundaries and solution accuracy in anisotropic adaptive meshing. Engineering With Computers, 2010, 26, 281-288.	6.1	0
62	Mimetic Finite Difference Schemes with Conditional Maximum Principle for Diffusion Problems. Springer Proceedings in Mathematics and Statistics, 2014, , 373-381.	0.2	0
63	Arbitrary order nodal mimetic discretizations of elliptic problems on polygonal meshes. Springer Proceedings in Mathematics, 2011, , 69-77.	0.5	0