Weizhang Huang

List of Publications by Year
in descending order

94 papers	3,233 citations	136885 32 h-index	155592 55 g-index
104 all docs	104 docs citations	104 times ranked	1178 citing authors

#	Article	IF	Citations
1	Moving Mesh Partial Differential Equations (MMPDES) Based on the Equidistribution Principle. SIAM Journal on Numerical Analysis, 1994, 31, 709-730.	1.1	287
2	Adaptivity with moving grids. Acta Numerica, 2009, 18, 111-241.	6.3	189
3	Moving Mesh Methods Based on Moving Mesh Partial Differential Equations. Journal of Computational Physics, 1994, 113, 279-290.	1.9	173
4	Adaptive Moving Mesh Methods. Applied Mathematical Sciences (Switzerland), 2011, , .	0.4	170
5	Moving Mesh Methods for Problems with Blow-Up. SIAM Journal of Scientific Computing, 1996, 17, 305-327.	1.3	147
6	Anr-Adaptive Finite Element Method Based upon Moving Mesh PDEs. Journal of Computational Physics, 1999, 149, 221-244.	1.9	130
7	Metric tensors for anisotropic mesh generation. Journal of Computational Physics, 2005, 204, 633-665.	1.9	129
8	Moving Mesh Strategy Based on a Gradient Flow Equation for Two-Dimensional Problems. SIAM Journal of Scientific Computing, 1998, 20, 998-1015.	1.3	107
9	Practical Aspects of Formulation and Solution of Moving Mesh Partial Differential Equations. Journal of Computational Physics, 2001, 171, 753-775.	1.9	107
10	A Study of Monitor Functions for Two-Dimensional Adaptive Mesh Generation. SIAM Journal of Scientific Computing, 1999, 20, 1978-1994.	1.3	91
11	Variational Mesh Adaptation: Isotropy and Equidistribution. Journal of Computational Physics, 2001, 174, 903-924.	1.9	90
12	Variational mesh adaptation II: error estimates and monitor functions. Journal of Computational Physics, 2003, 184, 619-648.	1.9	87
13	The Adaptive Verlet Method. SIAM Journal of Scientific Computing, 1997, 18, 239-256.	1.3	84
14	Analysis of Moving Mesh Partial Differential Equations with Spatial Smoothing. SIAM Journal on Numerical Analysis, 1997, 34, 1106-1126.	1.1	72
15	The Pseudospectral Method for Solving Differential Eigenvalue Problems. Journal of Computational Physics, 1994, 111, 399-409.	1.9	61
16	A Simple Adaptive Grid Method in Two Dimensions. SIAM Journal of Scientific Computing, 1994, 15, 776-797.	1.3	58
17	Pole Condition for Singular Problems: The Pseudospectral Approximation. Journal of Computational Physics, 1993, 107, 254-261.	1.9	57
18	A Moving Mesh Method Based on the Geometric Conservation Law. SIAM Journal of Scientific Computing, 2002, 24, 118-142.	1.3	56

#	Article	IF	Citations
19	A moving collocation method for solving time dependent partial differential equations. Applied Numerical Mathematics, 1996, 20, 101-116.	1.2	55
20	The Pseudospectral Method for Third-Order Differential Equations. SIAM Journal on Numerical Analysis, 1992, 29, 1626-1647.	1.1	52
21	Geometric Integrators for Classical Spin Systems. Journal of Computational Physics, 1997, 133, 160-172.	1.9	48
22	A study of moving mesh PDE methods for numerical simulation of blowup in reaction diffusion equations. Journal of Computational Physics, 2008, 227, 6532-6552.	1.9	47
23	An anisotropic mesh adaptation method for the finite element solution of heterogeneous anisotropic diffusion problems. Journal of Computational Physics, 2010, 229, 8072-8094.	1.9	44
24	A high dimensional moving mesh strategy. Applied Numerical Mathematics, 1998, 26, 63-76.	1.2	43
25	A two-dimensional moving finite element method with local refinement based on a posteriori error estimates. Applied Numerical Mathematics, 2003, 46, 75-94.	1.2	43
26	Measuring Mesh Qualities and Application to Variational Mesh Adaptation. SIAM Journal of Scientific Computing, 2005, 26, 1643-1666.	1.3	40
27	Adaptive mesh movement â€" the MMPDE approach and its applications. Journal of Computational and Applied Mathematics, 2001, 128, 383-398.	1.1	39
28	Approaches for generating moving adaptive meshes: location versus velocity. Applied Numerical Mathematics, 2003, 47, 121-138.	1.2	38
29	A geometric discretization and a simple implementation for variational mesh generation and adaptation. Journal of Computational Physics, 2015, 301, 322-337.	1.9	38
30	A new anisotropic mesh adaptation method based upon hierarchical a posteriori error estimates. Journal of Computational Physics, 2010, 229, 2179-2198.	1.9	35
31	The cutoff method for the numerical computation of nonnegative solutions of parabolic PDEs with application to anisotropic diffusion and Lubrication-type equations. Journal of Computational Physics, 2013, 242, 24-36.	1.9	35
32	Maximum principle in linear finite element approximations of anisotropic diffusionâ€"convectionâ€"reaction problems. Numerische Mathematik, 2014, 127, 515-537.	0.9	33
33	Convergence of de Boor's algorithm for the generation of equidistributing meshes. IMA Journal of Numerical Analysis, 2011, 31, 580-596.	1.5	31
34	Conditioning of finite element equations with arbitrary anisotropic meshes. Mathematics of Computation, 2014, 83, 2187-2211.	1.1	31
35	On the mesh nonsingularity of the moving mesh PDE method. Mathematics of Computation, 2018, 87, 1887-1911.	1.1	31
36	Discrete Maximum Principle and a Delaunay-Type Mesh Condition for Linear Finite Element Approximations of Two-Dimensional Anisotropic Diffusion Problems. Numerical Mathematics, 2011, 4, 319-334.	0.6	25

#	Article	IF	Citations
37	A study on moving mesh finite element solution of the porous medium equation. Journal of Computational Physics, 2017, 331, 357-380.	1.9	23
38	A Moving Mesh WENO Method for One-Dimensional Conservation Laws. SIAM Journal of Scientific Computing, 2012, 34, A2317-A2343.	1.3	22
39	Moving mesh finite element simulation for phase-field modeling of brittle fracture and convergence of Newton's iteration. Journal of Computational Physics, 2018, 356, 127-149.	1.9	21
40	Adaptive moving mesh methods for simulating one-dimensional groundwater problems with sharp moving fronts. International Journal for Numerical Methods in Engineering, 2002, 54, 1579-1603.	1.5	20
41	Discrete Maximum Principle for the Weak Galerkin Method for Anisotropic Diffusion Problems. Communications in Computational Physics, 2015, 18, 65-90.	0.7	18
42	An Error Indicator Monitor Function for an r-Adaptive Finite-Element Method. Journal of Computational Physics, 2001, 170, 871-892.	1.9	16
43	Convergence Analysis of Spectral Collocation Methods for a Singular Differential Equation. SIAM Journal on Numerical Analysis, 2003, 41, 2333-2349.	1.1	16
44	Maximum principle for the finite element solution of timeâ€dependent anisotropic diffusion problems. Numerical Methods for Partial Differential Equations, 2013, 29, 1963-1985.	2.0	16
45	Comparison of two-dimensional r-adaptive finite element methods using various error indicators. Mathematics and Computers in Simulation, 2001, 56, 127-143.	2.4	15
46	How a Nonconvergent Recovered Hessian Works in Mesh Adaptation. SIAM Journal on Numerical Analysis, 2014, 52, 1692-1708.	1.1	15
47	A quasi-Lagrangian moving mesh discontinuous Galerkin method for hyperbolic conservation laws. Journal of Computational Physics, 2019, 396, 544-578.	1.9	14
48	A new pseudospectral method with upwind features. IMA Journal of Numerical Analysis, 1993, 13, 413-430.	1.5	13
49	A hybrid LDG-HWENO scheme for KdV-type equations. Journal of Computational Physics, 2016, 313, 754-774.	1.9	12
50	An Adaptive Moving Mesh Finite Element Solution of the Regularized Long Wave Equation. Journal of Scientific Computing, 2018, 74, 122-144.	1.1	12
51	A moving mesh method in multiblock domains with application to a combustion problem. Numerical Methods for Partial Differential Equations, 1999, 15, 449-467.	2.0	11
52	A moving mesh finite difference method for equilibrium radiation diffusion equations. Journal of Computational Physics, 2015, 298, 661-677.	1.9	11
53	Finite Difference Preconditioning for Solving Orthogonal Collocation Equations for Boundary Value Problems. SIAM Journal on Numerical Analysis, 1996, 33, 2268-2285.	1.1	10
54	An anisotropic mesh adaptation method for the finite element solution of variational problems. Finite Elements in Analysis and Design, 2010, 46, 61-73.	1.7	10

#	Article	IF	Citations
55	High-Order Conservative Positivity-Preserving DG-Interpolation for Deforming Meshes and Application to Moving Mesh DG Simulation of Radiative Transfer. SIAM Journal of Scientific Computing, 2020, 42, A3109-A3135.	1.3	9
56	A High-Order Well-Balanced Positivity-Preserving Moving Mesh DG Method for the Shallow Water Equations With Non-Flat Bottom Topography. Journal of Scientific Computing, 2021, 87, 1.	1.1	9
57	Convergence of Algebraic multigrid methods for symmetric positive definite matrices with weak diagonal dominance. Applied Mathematics and Computation, 1991, 46, 145-164.	1.4	8
58	Sign-preserving of principal eigenfunctions in P1 finite element approximation of eigenvalue problems of second-order elliptic operators. Journal of Computational Physics, 2014, 274, 230-244.	1.9	8
59	Image Segmentation With Eigenfunctions of an Anisotropic Diffusion Operator. IEEE Transactions on Image Processing, 2016, 25, 2155-2167.	6.0	7
60	Stability of Explicit One-Step Methods for P1-Finite Element Approximation of Linear Diffusion Equations on Anisotropic Meshes. SIAM Journal on Numerical Analysis, 2016, 54, 1612-1634.	1.1	7
61	A study on nonnegativity preservation in finite element approximation of Nagumo-type nonlinear differential equations. Applied Mathematics and Computation, 2017, 309, 49-67.	1.4	6
62	Conditioning of the finite volume element method for diffusion problems with general simplicial meshes. Mathematics of Computation, 2019, 88, 2665-2696.	1.1	6
63	Pseudospectral solutions for steady motion of a viscous fluid inside a circular boundary. Applied Numerical Mathematics, 2000, 33, 167-173.	1.2	5
64	Variational Mesh Adaptation Methods for Axisymmetrical Problems. SIAM Journal on Numerical Analysis, 2003, 41, 235-257.	1.1	5
65	A Numerical Study of Blowup in the Harmonic Map Heat Flow Using the MMPDE Moving Mesh Method. Numerical Mathematics, 2013, 6, 364-383.	0.6	5
66	A third-order moving mesh cell-centered scheme for one-dimensional elastic-plastic flows. Journal of Computational Physics, 2017, 349, 137-153.	1.9	5
67	Analysis of a moving collocation method for one-dimensional partial differential equations. Science China Mathematics, 2012, 55, 827-840.	0.8	4
68	A new functional for variational mesh generation and adaptation based on equidistribution and alignment conditions. Computers and Mathematics With Applications, 2018, 75, 2044-2058.	1.4	4
69	Moving mesh simulation of contact sets in two dimensional models of elasticâ€“electrostatic deflection problems. Journal of Computational Physics, 2018, 375, 763-782.	1.9	4
70	Conditioning of implicit Rungeâ€“Kutta integration for finite element approximation of linear diffusion equations on anisotropic meshes. Journal of Computational and Applied Mathematics, 2021, 387, 112497.	1.1	4
71	A Quasi-Conservative Discontinuous Galerkin Method for Multi-component Flows Using the Non-oscillatory Kinetic Flux II: ALE Framework. Journal of Scientific Computing, 2022, 90, 1.	1.1	4
72	Unconditionally stable high-order time integration for moving mesh finite difference solution of linear convectionâ€“diffusion equations. International Journal of Computer Mathematics, 2015, 92, 1180-1203.	1.0	3

#	Article	IF	Citations
73	Monotone Finite Difference Schemes for Anisotropic Diffusion Problems via Nonnegative Directional Splittings. Communications in Computational Physics, 2016, 19, 473-495.	0.7	3
74	Guidance of Multi-Agent Fixed-Wing Aircraft Using a Moving Mesh Method. Unmanned Systems, 2016, 04, 227-244.	2.7	3
75	A posteriori error analysis for finite element solution of one-dimensional elliptic differential equations using equidistributing meshes. Journal of Computational and Applied Mathematics, 2016, 299, 101-126.	1.1	3
76	Validation and Verification Flight Tests of Fixed-Wing Collaborative UASs with High Speeds and High Inertias. , 2018, , .		3
77	Anisotropic mesh quality measures and adaptation for polygonal meshes. Journal of Computational Physics, 2020, 410, 109368.	1.9	3
78	Exploring the Effects of Prescribed Fire on Tick Spread and Propagation in a Spatial Setting. Computational and Mathematical Methods in Medicine, 2022, 2022, 1-14.	0.7	3
79	xmlns:xocs="http://www.elsevier.com/xml/xocs/dtd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.elsevier.com/xml/ja/dtd" xmlns:ja="http://www.elsevier.com/xml/ja/dtd" xmlns:mml="http://www.w3.org/1998/Math/MathML" xmlns:tb="http://www.elsevier.com/xml/common/table/dtd"	1.1	2
80	Adaptive finite element solution of the porous medium equation in pressure formulation. Numerical Methods for Partial Differential Equations, 2019, 35, 1224-1242.	2.0	2
81	A surface moving mesh method based on equidistribution and alignment. Journal of Computational Physics, 2020, 403, 109097.	1.9	2
82	Domain decomposition parabolic Mongeâ€“AmpÃ¨re approach for fast generation of adaptive moving meshes. Computers and Mathematics With Applications, 2021, 84, 97-111.	1.4	2
83	An adaptive spot placement method on Cartesian grid for pencil beam scanning proton therapy. Physics in Medicine and Biology, 2021, 66, 235012.	1.6	2
84	A Parallel Variational Mesh Quality Improvement Method for Tetrahedral Meshes Based on the MMPDE Method. CAD Computer Aided Design, 2022, 148, 103242.	1.4	2
85	A metric tensor approach to data assimilation with adaptive moving meshes. Journal of Computational Physics, 2022, 466, 111407.	1.9	2
86	Moving Finite Elements (M. J. Baines). SIAM Review, 1996, 38, 530-531.	4.2	1
87	A Study on Anisotropic Mesh Adaptation for Finite Element Approximation of Eigenvalue Problems with Anisotropic Diffusion Operators. SIAM Journal of Scientific Computing, 2015, 37, A2924-A2946.	1.3	1
88	Guidance of multi-agent fixed-wing aircraft using a moving mesh method. , 2015, , .		1
89	Anisotropic Mesh Adaptation for 3D Anisotropic Diffusion Problems with Application to Fractured Reservoir Simulation. Numerical Mathematics, 2017, 10, 913-940.	0.6	1
90	Control of Multi-Agent Collaborative Fixed-Wing UASs in Unstructured Environment. , 2018, , .		1

#	Article	IF	Citations
91	Moving mesh finite difference solution of non-equilibrium radiation diffusion equations. Numerical Algorithms, 2019, 82, 1409-1440.	1.1	1
92	Preconditioning for the Dynamic Simulation of Reaction-Transport Systems. Industrial & Engineering Chemistry Research, 2005, 44, 5680-5690.	1.8	0
93	Computation of eigenvalue problems with anisotropic diffusion operators. AIP Conference Proceedings, 2015, , .	0.3	0
94	Adaptive mesh movement â€" the MMPDE approach and its applications. , 2001, , 383-398.		0