

Steven M Wise

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

82
papers

4,615
citations

36
h-index

67
g-index

84
ext. papers

5,471
ext. citations

2.6
avg, IF

6.07
L-index

#	Paper	IF	Citations
82	An iteration solver for the Poisson-Nernst-Planck system and its convergence analysis. <i>Journal of Computational and Applied Mathematics</i> , 2022 , 406, 114017	2.4	0
81	Convergence Analysis of the Variational Operator Splitting Scheme for a Reaction-Diffusion System with Detailed Balance. <i>SIAM Journal on Numerical Analysis</i> , 2022 , 60, 781-803	2.4	1
80	Doubly degenerate diffuse interface models of anisotropic surface diffusion. <i>Mathematical Methods in the Applied Sciences</i> , 2021 , 44, 5406-5417	2.3	3
79	An Energy Stable Finite Element Scheme for the Three-Component Cahn-Hilliard-Type Model for Macromolecular Microsphere Composite Hydrogels. <i>Journal of Scientific Computing</i> , 2021 , 87, 1	2.3	7
78	A positivity-preserving, energy stable and convergent numerical scheme for the Poisson-Nernst-Planck system. <i>Mathematics of Computation</i> , 2021 , 90, 2071-2106	1.6	10
77	A diffuse domain method for two-phase flows with large density ratio in complex geometries. <i>Journal of Fluid Mechanics</i> , 2021 , 907,	3.7	8
76	An improved error analysis for a second-order numerical scheme for the Cahn-Hilliard equation. <i>Journal of Computational and Applied Mathematics</i> , 2021 , 388, 113300	2.4	5
75	Structure-Preserving, Energy Stable Numerical Schemes for a Liquid Thin Film Coarsening Model. <i>SIAM Journal of Scientific Computing</i> , 2021 , 43, A1248-A1272	2.6	9
74	Preconditioned Accelerated Gradient Descent Methods for Locally Lipschitz Smooth Objectives with Applications to the Solution of Nonlinear PDEs. <i>Journal of Scientific Computing</i> , 2021 , 89, 1	2.3	
73	A positivity-preserving, energy stable scheme for a ternary Cahn-Hilliard system with the singular interfacial parameters. <i>Journal of Computational Physics</i> , 2021 , 442, 110451	4.1	9
72	Doubly degenerate diffuse interface models of surface diffusion. <i>Mathematical Methods in the Applied Sciences</i> , 2021 , 44, 5385-5405	2.3	5
71	Convergence analysis of the Fast Subspace Descent method for convex optimization problems. <i>Mathematics of Computation</i> , 2020 , 89, 2249-2282	1.6	6
70	Global-in-time Gevrey regularity solutions for the functionalized Cahn-Hilliard equation. <i>Discrete and Continuous Dynamical Systems - Series S</i> , 2020 , 13, 2211-2229	2.8	2
69	A weakly nonlinear, energy stable scheme for the strongly anisotropic Cahn-Hilliard equation and its convergence analysis. <i>Journal of Computational Physics</i> , 2020 , 405, 109109	4.1	8
68	Numerical comparison of modified-energy stable SAV-type schemes and classical BDF methods on benchmark problems for the functionalized Cahn-Hilliard equation. <i>Journal of Computational Physics</i> , 2020 , 423, 109772	4.1	7
67	Energy Stable Numerical Schemes for Ternary Cahn-Hilliard System. <i>Journal of Scientific Computing</i> , 2020 , 84, 1	2.3	14
66	Positivity-preserving, energy stable numerical schemes for the Cahn-Hilliard equation with logarithmic potential. <i>Journal of Computational Physics: X</i> , 2019 , 3, 100031	1	17

65	An energy stable fourth order finite difference scheme for the Cahn-Hilliard equation. <i>Journal of Computational and Applied Mathematics</i> , 2019 , 362, 574-595	2.4	61
64	A second order energy stable scheme for the Cahn-Hilliard-Hele-Shaw equations. <i>Discrete and Continuous Dynamical Systems - Series B</i> , 2019 , 24, 149-182	1.3	2
63	An Energy Stable BDF2 Fourier Pseudo-Spectral Numerical Scheme for the Square Phase Field Crystal Equation. <i>Communications in Computational Physics</i> , 2019 , 26, 1335-1364	2.4	31
62	High Accuracy Benchmark Problems for Allen-Cahn and Cahn-Hilliard Dynamics. <i>Communications in Computational Physics</i> , 2019 , 26, 947-972	2.4	11
61	Modeling solvent evaporation during thin film formation in phase separating polymer mixtures. <i>Soft Matter</i> , 2018 , 14, 1833-1846	3.6	26
60	A second-order energy stable backward differentiation formula method for the epitaxial thin film equation with slope selection. <i>Numerical Methods for Partial Differential Equations</i> , 2018 , 34, 1975-2007	2.5	31
59	Efficient energy stable schemes for isotropic and strongly anisotropic Cahn-Hilliard systems with the Willmore regularization. <i>Journal of Computational Physics</i> , 2018 , 365, 56-73	4.1	19
58	A Uniquely Solvable, Energy Stable Numerical Scheme for the Functionalized Cahn-Hilliard Equation and Its Convergence Analysis. <i>Journal of Scientific Computing</i> , 2018 , 76, 1938-1967	2.3	20
57	A mass-conservative adaptive FAS multigrid solver for cell-centered finite difference methods on block-structured, locally-cartesian grids. <i>Journal of Computational Physics</i> , 2018 , 352, 463-497	4.1	11
56	A Second-Order Energy Stable BDF Numerical Scheme for the Cahn-Hilliard Equation. <i>Communications in Computational Physics</i> , 2018 , 23,	2.4	72
55	Convergence analysis and numerical implementation of a second order numerical scheme for the three-dimensional phase field crystal equation. <i>Computers and Mathematics With Applications</i> , 2018 , 75, 1912-1928	2.7	23
54	Error analysis of a mixed finite element method for a Cahn-Hilliard-Hele-Shaw system. <i>Numerische Mathematik</i> , 2017 , 135, 679-709	2.2	45
53	Preconditioned steepest descent methods for some nonlinear elliptic equations involving p-Laplacian terms. <i>Journal of Computational Physics</i> , 2017 , 334, 45-67	4.1	28
52	Convergence analysis and error estimates for a second order accurate finite element method for the Cahn-Hilliard-Navier-Stokes system. <i>Numerische Mathematik</i> , 2017 , 137, 495-534	2.2	60
51	Mass conservative and energy stable finite difference methods for the quasi-incompressible Navier-Stokes-Cahn-Hilliard system: Primitive variable and projection-type schemes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2017 , 326, 144-174	5.7	44
50	A Second-Order, Weakly Energy-Stable Pseudo-spectral Scheme for the Cahn-Hilliard Equation and Its Solution by the Homogeneous Linear Iteration Method. <i>Journal of Scientific Computing</i> , 2016 , 69, 1083-1114	2.3	114 ⁵²
49	An energy stable, hexagonal finite difference scheme for the 2D phase field crystal amplitude equations. <i>Journal of Computational Physics</i> , 2016 , 321, 1026-1054	4.1	6
48	Stability and convergence of a second-order mixed finite element method for the Cahn-Hilliard equation. <i>IMA Journal of Numerical Analysis</i> , 2016 , 36, 1867-1897	1.8	71

47	The Dynamics of HPV Infection and Cervical Cancer Cells. <i>Bulletin of Mathematical Biology</i> , 2016 , 78, 4-20.1	17
46	Global-in-time Gevrey regularity solution for a class of bistable gradient flows. <i>Discrete and Continuous Dynamical Systems - Series B</i> , 2016 , 21, 1689-1711	1.3 2
45	An H^2 convergence of a second-order convex-splitting, finite difference scheme for the three-dimensional Cahn-Hilliard equation. <i>Communications in Mathematical Sciences</i> , 2016 , 14, 489-515	1 68
44	Adaptive, second-order in time, primitive-variable discontinuous Galerkin schemes for a Cahn-Hilliard equation with a mass source. <i>IMA Journal of Numerical Analysis</i> , 2015 , 35, 1167-1198	1.8 26
43	Discontinuous Galerkin derivative operators with applications to second-order elliptic problems and stability. <i>Mathematical Methods in the Applied Sciences</i> , 2015 , 38, 5160-5182	2.3 3
42	Analysis of a Mixed Finite Element Method for a Cahn-Hilliard-Darcy-Stokes System. <i>SIAM Journal on Numerical Analysis</i> , 2015 , 53, 127-152	2.4 65
41	Convergence analysis of a fully discrete finite difference scheme for the Cahn-Hilliard-Hele-Shaw equation. <i>Mathematics of Computation</i> , 2015 , 85, 2231-2257	1.6 54
40	A convergent convex splitting scheme for the periodic nonlocal Cahn-Hilliard equation. <i>Numerische Mathematik</i> , 2014 , 128, 377-406	2.2 49
39	A stable scheme for a nonlinear, multiphase tumor growth model with an elastic membrane. <i>International Journal for Numerical Methods in Biomedical Engineering</i> , 2014 , 30, 726-54	2.6 30
38	A Linear Iteration Algorithm for a Second-Order Energy Stable Scheme for a Thin Film Model Without Slope Selection. <i>Journal of Scientific Computing</i> , 2014 , 59, 574-601	2.3 48
37	Second order convex splitting schemes for periodic nonlocal Cahn-Hilliard and Allen-Cahn equations. <i>Journal of Computational Physics</i> , 2014 , 277, 48-71	4.1 80
36	Energy stable and efficient finite-difference nonlinear multigrid schemes for the modified phase field crystal equation. <i>Journal of Computational Physics</i> , 2013 , 250, 270-292	4.1 77
35	Convergence Analysis of a Second Order Convex Splitting Scheme for the Modified Phase Field Crystal Equation. <i>SIAM Journal on Numerical Analysis</i> , 2013 , 51, 2851-2873	2.4 79
34	An Efficient, Energy Stable Scheme for the Cahn-Hilliard-Brinkman System. <i>Communications in Computational Physics</i> , 2013 , 13, 929-957	2.4 52
33	A mixed discontinuous Galerkin, convex splitting scheme for a modified Cahn-Hilliard equation and an efficient nonlinear multigrid solver. <i>Discrete and Continuous Dynamical Systems - Series B</i> , 2013 , 18, 2211-2238	1.3 32
32	Phase-field modeling of epitaxial growth: Applications to step trains and island dynamics. <i>Physica D: Nonlinear Phenomena</i> , 2012 , 241, 77-94	3.3 15
31	Second-order Convex Splitting Schemes for Gradient Flows with Ehrlich-Schwoebel Type Energy: Application to Thin Film Epitaxy. <i>SIAM Journal on Numerical Analysis</i> , 2012 , 50, 105-125	2.4 190
30	Analysis of a Darcy-Cahn-Hilliard Diffuse Interface Model for the Hele-Shaw Flow and Its Fully Discrete Finite Element Approximation. <i>SIAM Journal on Numerical Analysis</i> , 2012 , 50, 1320-1343	2.4 71

29	A Linear Energy Stable Scheme for a Thin Film Model Without Slope Selection. <i>Journal of Scientific Computing</i> , 2012 , 52, 546-562	2.3	72
28	Coarsening of elastically stressed, strongly anisotropic driven thin films. <i>Physical Review E</i> , 2012 , 85, 061605	2.4	3
27	An Energy Stable and Convergent Finite-Difference Scheme for the Modified Phase Field Crystal Equation. <i>SIAM Journal on Numerical Analysis</i> , 2011 , 49, 945-969	2.4	170
26	An Adaptive Multigrid Algorithm for Simulating Solid Tumor Growth Using Mixture Models. <i>Mathematical and Computer Modelling</i> , 2011 , 53, 1-20		70
25	Nonlinear modelling of cancer: bridging the gap between cells and tumours. <i>Nonlinearity</i> , 2010 , 23, R1-R97		368
24	Unconditionally Stable Finite Difference, Nonlinear Multigrid Simulation of the Cahn-Hilliard-Hele-Shaw System of Equations. <i>Journal of Scientific Computing</i> , 2010 , 44, 38-68	2.3	123
23	Three-dimensional multispecies nonlinear tumor growth-II: Tumor invasion and angiogenesis. <i>Journal of Theoretical Biology</i> , 2010 , 264, 1254-78	2.3	150
22	Unconditionally stable schemes for equations of thin film epitaxy. <i>Discrete and Continuous Dynamical Systems</i> , 2010 , 28, 405-423	2	103
21	Global Smooth Solutions of the Three-dimensional Modified Phase Field Crystal Equation. <i>Methods and Applications of Analysis</i> , 2010 , 17, 191-212	0.3	32
20	A new phase-field model for strongly anisotropic systems. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2009 , 465, 1337-1359	2.4	131
19	Nonlinear simulations of solid tumor growth using a mixture model: invasion and branching. <i>Journal of Mathematical Biology</i> , 2009 , 58, 723-63	2	181
18	Stable and efficient finite-difference nonlinear-multigrid schemes for the phase field crystal equation. <i>Journal of Computational Physics</i> , 2009 , 228, 5323-5339	4.1	187
17	Multiparameter computational modeling of tumor invasion. <i>Cancer Research</i> , 2009 , 69, 4493-501	10.1	92
16	An Energy-Stable and Convergent Finite-Difference Scheme for the Phase Field Crystal Equation. <i>SIAM Journal on Numerical Analysis</i> , 2009 , 47, 2269-2288	2.4	242
15	LECTURE NOTES ON NONLINEAR TUMOR GROWTH: MODELING AND SIMULATION. <i>Lecture Notes Series, Institute for Mathematical Sciences</i> , 2009 , 69-133	0.1	
14	Simulations of Nonlinear Strongly Anisotropic, Misfitting Crystals and Thin Films. <i>Materials Research Society Symposia Proceedings</i> , 2008 , 1087, 20101		3
13	Three-dimensional multispecies nonlinear tumor growth-I Model and numerical method. <i>Journal of Theoretical Biology</i> , 2008 , 253, 524-43	2.3	309
12	Nonlinear Modeling and Simulation of Tumor Growth 2008 , 1-69		3

11	Solving the regularized, strongly anisotropic Cahn-Hilliard equation by an adaptive nonlinear multigrid method. <i>Journal of Computational Physics</i> , 2007 , 226, 414-446	4.1	138
10	Computer simulation of glioma growth and morphology. <i>NeuroImage</i> , 2007 , 37 Suppl 1, S59-70	7.9	173
9	Surface-directed spinodal decomposition in a stressed, two-dimensional, thin film. <i>Thin Solid Films</i> , 2005 , 473, 151-163	2.2	23
8	Nonlinear simulation of tumor necrosis, neo-vascularization and tissue invasion via an adaptive finite-element/level-set method. <i>Bulletin of Mathematical Biology</i> , 2005 , 67, 211-59	2.1	169
7	Wetting transitions in a binary thin-film. <i>Metals and Materials International</i> , 2005 , 11, 487-497	2.4	
6	Quantum dot formation on a strain-patterned epitaxial thin film. <i>Applied Physics Letters</i> , 2005 , 87, 133103-4	3.4	67
5	Efficient phase-field simulation of quantum dot formation in a strained heteroepitaxial film. <i>Superlattices and Microstructures</i> , 2004 , 36, 293-304	2.8	48
4	Effect of interfacial segregation on phase decomposition of a thin film on a patterned substrate. <i>Metals and Materials International</i> , 2003 , 9, 1-8	2.4	3
3	Numerical simulations of pattern-directed phase decomposition in a stressed, binary thin film. <i>Journal of Applied Physics</i> , 2003 , 94, 889-898	2.5	21
2	Phase decomposition of a binary thin film on a patterned substrate. <i>Applied Physics Letters</i> , 2002 , 81, 919-921	3.4	17
1	Algorithm 801: POLSYS_PLP. <i>ACM Transactions on Mathematical Software</i> , 2000 , 26, 176-200	2.3	35