Steven M Wise

List of Publications by Year
in descending order

84 papers	6,452 citations	76196 40 h-index	64668 79 g-index
84 all docs	84 docs citations	84 times ranked	2153 citing authors

#	Article	IF	Citations
1	Nonlinear modelling of cancer: bridging the gap between cells and tumours. Nonlinearity, 2010, 23, R1-R91.	0.6	464
2	Three-dimensional multispecies nonlinear tumor growthâ€"I. Journal of Theoretical Biology, 2008, 253, 524-543.	0.8	381
3	An Energy-Stable and Convergent Finite-Difference Scheme for the Phase Field Crystal Equation. SIAM Journal on Numerical Analysis, 2009, 47, 2269-2288.	1.1	332
4	Second-order Convex Splitting Schemes for Gradient Flows with Ehrlichâ€"Schwoebel Type Energy: Application to Thin Film Epitaxy. SIAM Journal on Numerical Analysis, 2012, 50, 105-125.	1.1	266
5	Stable and efficient finite-difference nonlinear-multigrid schemes for the phase field crystal equation. Journal of Computational Physics, 2009, 228, 5323-5339.	1.9	238
6	An Energy Stable and Convergent Finite-Difference Scheme for the Modified Phase Field Crystal Equation. SIAM Journal on Numerical Analysis, 2011, 49, 945-969.	1.1	228
7	Nonlinear simulations of solid tumor growth using a mixture model: invasion and branching. Journal of Mathematical Biology, 2009, 58, 723-763.	0.8	224
8	Nonlinear simulation of tumor necrosis, neo-vascularization and tissue invasion via an adaptive finite-element/level-set method. Bulletin of Mathematical Biology, 2005, 67, 211-259.	0.9	213
9	Computer simulation of glioma growth and morphology. NeuroImage, 2007, 37, S59-S70.	2.1	212
10	Three-dimensional multispecies nonlinear tumor growthâ€"II: Tumor invasion and angiogenesis. Journal of Theoretical Biology, 2010, 264, 1254-1278.	0.8	194
11	Solving the regularized, strongly anisotropic Cahnâ€"Hilliard equation by an adaptive nonlinear multigrid method. Journal of Computational Physics, 2007, 226, 414-446.	1.9	162
12	A new phase-field model for strongly anisotropic systems. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2009, 465, 1337-1359.	1.0	154
13	Unconditionally Stable Finite Difference, Nonlinear Multigrid Simulation of the Cahn-Hilliard-Hele-Shaw System of Equations. Journal of Scientific Computing, 2010, 44, 38-68.	1.1	151
14	Convergence Analysis of a Second Order Convex Splitting Scheme for the Modified Phase Field Crystal Equation. SIAM Journal on Numerical Analysis, 2013, 51, 2851-2873.	1.1	129
15	Unconditionally stable schemes for equations of thin film epitaxy. Discrete and Continuous Dynamical Systems, 2010, 28, 405-423.	0.5	128
16	Multiparameter Computational Modeling of Tumor Invasion. Cancer Research, 2009, 69, 4493-4501.	0.4	124
17	A Second-Order Energy Stable BDF Numerical Scheme for the Cahn-Hilliard Equation. Communications in Computational Physics, 2018, 23, .	0.7	124
18	Second order convex splitting schemes for periodic nonlocal Cahnâ€"Hilliard and Allenâ€"Cahn equations. Journal of Computational Physics, 2014, 277, 48-71.	1.9	117

#	Article	IF	Citations
19	Convergence analysis and error estimates for a second order accurate finite element method for the Cahnâ€“Hilliardâ€“Navierâ€“Stokes system. Numerische Mathematik, 2017, 137, 495-534.	0.9	114
20	An energy stable fourth order finite difference scheme for the Cahnâ€“Hilliard equation. Journal of Computational and Applied Mathematics, 2019, 362, 574-595.	1.1	112
21	A Linear Energy Stable Scheme for a Thin Film Model Without Slope Selection. Journal of Scientific Computing, 2012, 52, 546-562.	1.1	111
22	Energy stable and efficient finite-difference nonlinear multigrid schemes for the modified phase field crystal equation. Journal of Computational Physics, 2013, 250, 270-292.	1.9	110
23	Stability and convergence of a second-order mixed finite element method for the Cahnâ€“Hilliard equation. IMA Journal of Numerical Analysis, 2016, 36, 1867-1897.	1.5	108
24	An H^2 convergence of a second-order convex-splitting, finite difference scheme for the three-dimensional Cahnâ€“Hilliard equation. Communications in Mathematical Sciences, 2016, 14, 489-515.	0.5	107
25	A Second-Order, Weakly Energy-Stable Pseudo-spectral Scheme for the Cahnâ€“Hilliard Equation and Its Solution by the Homogeneous Linear Iteration Method. Journal of Scientific Computing, 2016, 69, 1083-1114.	1.1	91
26	Convergence analysis of a fully discrete finite difference scheme for the Cahn-Hilliard-Hele-Shaw equation. Mathematics of Computation, 2015, 85, 2231-2257.	1.1	89
27	An adaptive multigrid algorithm for simulating solid tumor growth using mixture models. Mathematical and Computer Modelling, 2011, 53, 1-20.	2.0	88
28	Analysis of a Darcy--Cahn--Hilliard Diffuse Interface Model for the Hele-Shaw Flow and Its Fully Discrete Finite Element Approximation. SIAM Journal on Numerical Analysis, 2012, 50, 1320-1343.	1.1	86
29	Analysis of a Mixed Finite Element Method for a Cahn--Hilliard--Darcy--Stokes System. SIAM Journal on Numerical Analysis, 2015, 53, 127-152.	1.1	84
30	A convergent convex splitting scheme for the periodic nonlocal Cahn-Hilliard equation. Numerische Mathematik, 2014, 128, 377-406.	0.9	83
31	Quantum dot formation on a strain-patterned epitaxial thin film. Applied Physics Letters, 2005, 87, 133102.	1.5	75
32	Error analysis of a mixed finite element method for a Cahnâ€“Hilliardâ€“Heleâ€“Shaw system. Numerische Mathematik, 2017, 135, 679-709.	0.9	74
33	A Linear Iteration Algorithm for a Second-Order Energy Stable Scheme for a Thin Film Model Without Slope Selection. Journal of Scientific Computing, 2014, 59, 574-601.	1.1	67
34	Mass conservative and energy stable finite difference methods for the quasi-incompressible Navierâ€“Stokesâ€“Cahnâ€“Hilliard system: Primitive variable and projection-type schemes. Computer Methods in Applied Mechanics and Engineering, 2017, 326, 144-174.	3.4	66
35	An Energy Stable BDF2 Fourier Pseudo-Spectral Numerical Scheme for the Square Phase Field Crystal Equation. Communications in Computational Physics, 2019, 26, 1335-1364.	0.7	66
36	An Efficient, Energy Stable Scheme for the Cahn-Hilliard-Brinkman System. Communications in Computational Physics, 2013, 13, 929-957.	0.7	61

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37	Efficient phase-field simulation of quantum dot formation in a strained heteroepitaxial film. Superlattices and Microstructures, 2004, 36, 293-304.	1.4	54
38	A secondâ€order energy stable backward differentiation formula method for the epitaxial thin film equation with slope selection. Numerical Methods for Partial Differential Equations, 2018, 34, 1975-2007.	2.0	50
39	Preconditioned steepest descent methods for some nonlinear elliptic equations involving p-Laplacian terms. Journal of Computational Physics, 2017, 334, 45-67.	1.9	45
40	Convergence analysis and numerical implementation of a second order numerical scheme for the three-dimensional phase field crystal equation. Computers and Mathematics With Applications, 2018, 75, 1912-1928.	1.4	43
41	Algorithm 801: POLSYS_PLP. ACM Transactions on Mathematical Software, 2000, 26, 176-200.	1.6	41
42	Adaptive, second-order in time, primitive-variable discontinuous Galerkin schemes for a Cahnâ€“Hilliard equation with a mass source. IMA Journal of Numerical Analysis, 2015, 35, 1167-1198.	1.5	41
43	Modeling solvent evaporation during thin film formation in phase separating polymer mixtures. Soft Matter, 2018, 14, 1833-1846.	1.2	41
44	Positivity-preserving, energy stable numerical schemes for the Cahn-Hilliard equation with logarithmic potential. Journal of Computational Physics: X, 2019, 3, 100031.	1.1	37
45	Energy Stable Numerical Schemes for Ternary Cahn-Hilliard System. Journal of Scientific Computing, 2020, 84, 1.	1.1	37
46	A positivity-preserving, energy stable scheme for a ternary Cahn-Hilliard system with the singular interfacial parameters. Journal of Computational Physics, 2021, 442, 110451.	1.9	37
47	A stable scheme for a nonlinear, multiphase tumor growth model with an elastic membrane. International Journal for Numerical Methods in Biomedical Engineering, 2014, 30, 726-754.	1.0	36
48	A positivity-preserving, energy stable and convergent numerical scheme for the Poisson-Nernst-Planck system. Mathematics of Computation, 2021, 90, 2071-2106.	1.1	36
49	Global Smooth Solutions of the Three-dimensional Modified Phase Field Crystal Equation. Methods and Applications of Analysis, 2010, 17, 191-212.	0.1	35
50	A mixed discontinuous Galerkin, convex splitting scheme for a modified Cahn-Hilliard equation and an efficient nonlinear multigrid solver. Discrete and Continuous Dynamical Systems - Series B, 2013, 18, 2211-2238.	0.5	34
51	A Uniquely Solvable, Energy Stable Numerical Scheme for the Functionalized Cahnâ€“Hilliard Equation and Its Convergence Analysis. Journal of Scientific Computing, 2018, 76, 1938-1967.	1.1	31
52	Efficient energy stable schemes for isotropic and strongly anisotropic Cahnâ€“Hilliard systems with the Willmore regularization. Journal of Computational Physics, 2018, 365, 56-73.	1.9	28
53	The Dynamics of HPV Infection and Cervical Cancer Cells. Bulletin of Mathematical Biology, 2016, 78, 4-20.	0.9	27
54	Numerical comparison of modified-energy stable SAV-type schemes and classical BDF methods on benchmark problems for the functionalized Cahn-Hilliard equation. Journal of Computational Physics, 2020, 423, 109772.	1.9	26

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55	An Energy Stable Finite Element Scheme for the Three-Component Cahnâ€“Hilliard-Type Model for Macromolecular Microsphere Composite Hydrogels. Journal of Scientific Computing, 2021, 87, 1.	1.1	26
56	Surface-directed spinodal decomposition in a stressed, two-dimensional, thin film. Thin Solid Films, 2005, 473, 151-163.	0.8	24
57	High Accuracy Benchmark Problems for Allen-Cahn and Cahn-Hilliard Dynamics. Communications in Computational Physics, 2019, 26, 947-972.	0.7	24
58	Numerical simulations of pattern-directed phase decomposition in a stressed, binary thin film. Journal of Applied Physics, 2003, 94, 889-898.	1.1	22
59	Structure-Preserving, Energy Stable Numerical Schemes for a Liquid Thin Film Coarsening Model. SIAM Journal of Scientific Computing, 2021, 43, A1248-A1272.	1.3	20
60	Phase decomposition of a binary thin film on a patterned substrate. Applied Physics Letters, 2002, 81, 919-921.	1.5	19
61	A diffuse domain method for two-phase flows with large density ratio in complex geometries. Journal of Fluid Mechanics, 2021, 907, .	1.4	19
62	A mass-conservative adaptive FAS multigrid solver for cell-centered finite difference methods on block-structured, locally-cartesian grids. Journal of Computational Physics, 2018, 352, 463-497.	1.9	18
63	A weakly nonlinear, energy stable scheme for the strongly anisotropic Cahn-Hilliard equation and its convergence analysis. Journal of Computational Physics, 2020, 405, 109109.	1.9	18
64	Phase-field modeling of epitaxial growth: Applications to step trains and island dynamics. Physica D: Nonlinear Phenomena, 2012, 241, 77-94.	1.3	17
65	An improved error analysis for a second-order numerical scheme for the Cahnâ€“Hilliard equation. Journal of Computational and Applied Mathematics, 2021, 388, 113300.	1.1	17
66	Convergence Analysis of the Variational Operator Splitting Scheme for a Reaction-Diffusion System with Detailed Balance. SIAM Journal on Numerical Analysis, 2022, 60, 781-803.	1.1	16
67	Doubly degenerate diffuse interface models of surface diffusion. Mathematical Methods in the Applied Sciences, 2021, 44, 5385-5405.	1.2	15
68	An energy stable, hexagonal finite difference scheme for the 2D phase field crystal amplitude equations. Journal of Computational Physics, 2016, 321, 1026-1054.	1.9	14
69	Nonlinear Modeling and Simulation of Tumor Growth. Modeling and Simulation in Science, Engineering and Technology, 2008, , 1-69.	0.4	10
70	Convergence analysis of the Fast Subspace Descent method for convex optimization problems. Mathematics of Computation, 2020, 89, 2249-2282.	1.1	9
71	A second order energy stable scheme for the Cahn-Hilliard-Hele-Shaw equations. Discrete and Continuous Dynamical Systems - Series B, 2019, 24, 149-182.	0.5	9
72	Doubly degenerate diffuse interface models of anisotropic surface diffusion. Mathematical Methods in the Applied Sciences, 2021, 44, 5406-5417.	1.2	9

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73	Discontinuous Galerkin derivative operators with applications to secondâ€order elliptic problems and stability. Mathematical Methods in the Applied Sciences, 2015, 38, 5160-5182.	1.2	7
74	An iteration solver for the Poissonâ€“Nernstâ€“Planck system and its convergence analysis. Journal of Computational and Applied Mathematics, 2022, 406, 114017.	1.1	6
75	Effect of interfacial segregation on phase decomposition of a thin film on a patterned substrate. Metals and Materials International, 2003, 9, 1-8.	1.8	4
76	Global-in-time Gevrey regularity solution for a class of bistable gradient flows. Discrete and Continuous Dynamical Systems - Series B, 2016, 21, 1689-1711.	0.5	4
77	Simulations of Nonlinear Strongly Anisotropic, Misfitting Crystals and Thin Films. Materials Research Society Symposia Proceedings, 2008, 1087, 20101.	0.1	3
78	Coarsening of elastically stressed, strongly anisotropic driven thin films. Physical Review E, 2012, 85, 061605.	0.8	3
79	Preconditioned Accelerated Gradient Descent Methods for Locally Lipschitz Smooth Objectives with Applications to the Solution of Nonlinear PDEs. Journal of Scientific Computing, 2021, 89, 1.	1.1	3
80	Global-in-time Gevrey regularity solutions for the functionalized Cahn-Hilliard equation. Discrete and Continuous Dynamical Systems - Series S, 2020, 13, 2211-2229.	0.6	2
81	Optimal rate convergence analysis of a numerical scheme for the ternary Cahnâ€“Hilliard system with a Floryâ€“Hugginsâ€“deGennes energy potential. Journal of Computational and Applied Mathematics, 2022, 415, 114474.	1.1	2
82	Wetting transitions in a binary thin-film. Metals and Materials International, 2005, 11, 487-497.	1.8	0
83	LECTURE NOTES ON NONLINEAR TUMOR GROWTH: MODELING AND SIMULATION. Lecture Notes Series, Institute for Mathematical Sciences, 2009, , 69-133.	0.2	0
84	Publisher's Note: Coarsening of elastically stressed, strongly anisotropic driven thin films [Phys. Rev. E85, 061605 (2012)]. Physical Review E, 2012, 86, .	0.8	0