Steven M Wise

List of Publications by Citations

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	Nonlinear modelling of cancer: bridging the gap between cells and tumours. *Nonlinearity*, **2010**, 23, R1-R91	2.7	368
81	Three-dimensional multispecies nonlinear tumor growth--I Model and numerical method. *Journal of Theoretical Biology*, **2008**, 253, 524-43	2.3	309
80	An Energy-Stable and Convergent Finite-Difference Scheme for the Phase Field Crystal Equation. *SIAM Journal on Numerical Analysis*, **2009**, 47, 2269-2288	2.4	242
79	Second-order Convex Splitting Schemes for Gradient Flows with Ehrlich–Schwoebel Type Energy: Application to Thin Film Epitaxy. *SIAM Journal on Numerical Analysis*, **2012**, 50, 105-125	2.4	190
78	Stable and efficient finite-difference nonlinear-multigrid schemes for the phase field crystal equation. *Journal of Computational Physics*, **2009**, 228, 5323-5339	4.1	187
77	Nonlinear simulations of solid tumor growth using a mixture model: invasion and branching. *Journal of Mathematical Biology*, **2009**, 58, 723-63	2	181
76	Computer simulation of glioma growth and morphology. *NeuroImage*, **2007**, 37 Suppl 1, S59-70	7.9	173
75	An Energy Stable and Convergent Finite-Difference Scheme for the Modified Phase Field Crystal Equation. *SIAM Journal on Numerical Analysis*, **2011**, 49, 945-969	2.4	170
74	Nonlinear simulation of tumor necrosis, neo-vascularization and tissue invasion via an adaptive finite-element/level-set method. *Bulletin of Mathematical Biology*, **2005**, 67, 211-59	2.1	169
73	Three-dimensional multispecies nonlinear tumor growth-II: Tumor invasion and angiogenesis. *Journal of Theoretical Biology*, **2010**, 264, 1254-78	2.3	150
72	Solving the regularized, strongly anisotropic Cahn–Hilliard equation by an adaptive nonlinear multigrid method. *Journal of Computational Physics*, **2007**, 226, 414-446	4.1	138
71	A new phase-field model for strongly anisotropic systems. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2009**, 465, 1337-1359	2.4	131
70	Unconditionally Stable Finite Difference, Nonlinear Multigrid Simulation of the Cahn-Hilliard-Hele-Shaw System of Equations. *Journal of Scientific Computing*, **2010**, 44, 38-68	2.3	123
69	Unconditionally stable schemes for equations of thin film epitaxy. *Discrete and Continuous Dynamical Systems*, **2010**, 28, 405-423	2	103
68	Multiparameter computational modeling of tumor invasion. *Cancer Research*, **2009**, 69, 4493-501	10.1	92
67	Second order convex splitting schemes for periodic nonlocal Cahn–Hilliard and Allen–Cahn equations. *Journal of Computational Physics*, **2014**, 277, 48-71	4.1	80
66	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	2.4	79

65	Energy stable and efficient finite-difference nonlinear multigrid schemes for the modified phase field crystal equation. *Journal of Computational Physics*, **2013**, 250, 270-292	4.1	77
64	A Linear Energy Stable Scheme for a Thin Film Model Without Slope Selection. *Journal of Scientific Computing*, **2012**, 52, 546-562	2.3	72
63	A Second-Order Energy Stable BDF Numerical Scheme for the Cahn-Hilliard Equation. *Communications in Computational Physics*, **2018**, 23,	2.4	72
62	Stability and convergence of a second-order mixed finite element method for the Cahn–Hilliard equation. *IMA Journal of Numerical Analysis*, **2016**, 36, 1867-1897	1.8	71
61	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	2.4	71
60	An Adaptive Multigrid Algorithm for Simulating Solid Tumor Growth Using Mixture Models. *Mathematical and Computer Modelling*, **2011**, 53, 1-20		70
59	An H^2 convergence of a second-order convex-splitting, finite difference scheme for the three-dimensional Cahn–Hilliard equation. *Communications in Mathematical Sciences*, **2016**, 14, 489-515	1	68
58	Quantum dot formation on a strain-patterned epitaxial thin film. *Applied Physics Letters*, **2005**, 87, 133102	3.4	67
57	Analysis of a Mixed Finite Element Method for a Cahn--Hilliard--Darcy--Stokes System. *SIAM Journal on Numerical Analysis*, **2015**, 53, 127-152	2.4	65
56	An energy stable fourth order finite difference scheme for the Cahn–Hilliard equation. *Journal of Computational and Applied Mathematics*, **2019**, 362, 574-595	2.4	61
55	Convergence analysis and error estimates for a second order accurate finite element method for the Cahn–Hilliard–Navier–Stokes system. *Numerische Mathematik*, **2017**, 137, 495-534	2.2	60
54	Convergence analysis of a fully discrete finite difference scheme for the Cahn-Hilliard-Hele-Shaw equation. *Mathematics of Computation*, **2015**, 85, 2231-2257	1.6	54
53	A Second-Order, Weakly Energy-Stable Pseudo-spectral Scheme for the Cahn–Hilliard Equation and Its Solution by the Homogeneous Linear Iteration Method. *Journal of Scientific Computing*, **2016**, 69, 1083–1114	2.3	52
52	An Efficient, Energy Stable Scheme for the Cahn-Hilliard-Brinkman System. *Communications in Computational Physics*, **2013**, 13, 929-957	2.4	52
51	A convergent convex splitting scheme for the periodic nonlocal Cahn-Hilliard equation. *Numerische Mathematik*, **2014**, 128, 377-406	2.2	49
50	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	2.3	48
49	Efficient phase-field simulation of quantum dot formation in a strained heteroepitaxial film. *Superlattices and Microstructures*, **2004**, 36, 293-304	2.8	48
48	Error analysis of a mixed finite element method for a Cahn–Hilliard–Hele–Shaw system. *Numerische Mathematik*, **2017**, 135, 679-709	2.2	45

47	Mass conservative and energy stable finite difference methods for the quasi-incompressible Navier-Stokes-Cahn-Hilliard system: Primitive variable and projection-type schemes. *Computer Methods in Applied Mechanics and Engineering*, **2017**, 326, 144-174	5.7	44
46	Algorithm 801: POLSYS_PLP. *ACM Transactions on Mathematical Software*, **2000**, 26, 176-200	2.3	35
45	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	1.3	32
44	Global Smooth Solutions of the Three-dimensional Modified Phase Field Crystal Equation. *Methods and Applications of Analysis*, **2010**, 17, 191-212	0.3	32
43	A second-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	2.5	31
42	An Energy Stable BDF2 Fourier Pseudo-Spectral Numerical Scheme for the Square Phase Field Crystal Equation. *Communications in Computational Physics*, **2019**, 26, 1335-1364	2.4	31
41	A stable scheme for a nonlinear, multiphase tumor growth model with an elastic membrane. *International Journal for Numerical Methods in Biomedical Engineering*, **2014**, 30, 726-54	2.6	30
40	Preconditioned steepest descent methods for some nonlinear elliptic equations involving p-Laplacian terms. *Journal of Computational Physics*, **2017**, 334, 45-67	4.1	28
39	Adaptive, second-order in time, primitive-variable discontinuous Galerkin schemes for a Cahn-Hilliard equation with a mass source. *IMA Journal of Numerical Analysis*, **2015**, 35, 1167-1198	1.8	26
38	Modeling solvent evaporation during thin film formation in phase separating polymer mixtures. *Soft Matter*, **2018**, 14, 1833-1846	3.6	26
37	Surface-directed spinodal decomposition in a stressed, two-dimensional, thin film. *Thin Solid Films*, **2005**, 473, 151-163	2.2	23
36	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	2.7	23
35	Numerical simulations of pattern-directed phase decomposition in a stressed, binary thin film. *Journal of Applied Physics*, **2003**, 94, 889-898	2.5	21
34	A Uniquely Solvable, Energy Stable Numerical Scheme for the Functionalized Cahn-Hilliard Equation and Its Convergence Analysis. *Journal of Scientific Computing*, **2018**, 76, 1938-1967	2.3	20
33	Efficient energy stable schemes for isotropic and strongly anisotropic Cahn-Hilliard systems with the Willmore regularization. *Journal of Computational Physics*, **2018**, 365, 56-73	4.1	19
32	Positivity-preserving, energy stable numerical schemes for the Cahn-Hilliard equation with logarithmic potential. *Journal of Computational Physics: X*, **2019**, 3, 100031	1	17
31	The Dynamics of HPV Infection and Cervical Cancer Cells. *Bulletin of Mathematical Biology*, **2016**, 78, 4-20	2.1	17
30	Phase decomposition of a binary thin film on a patterned substrate. *Applied Physics Letters*, **2002**, 81, 919-921	3.4	17

29	Phase-field modeling of epitaxial growth: Applications to step trains and island dynamics. *Physica D: Nonlinear Phenomena*, **2012**, 241, 77-94	3.3	15
28	Energy Stable Numerical Schemes for Ternary Cahn-Hilliard System. *Journal of Scientific Computing*, **2020**, 84, 1	2.3	14
27	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	4.1	11
26	High Accuracy Benchmark Problems for Allen-Cahn and Cahn-Hilliard Dynamics. *Communications in Computational Physics*, **2019**, 26, 947-972	2.4	11
25	A positivity-preserving, energy stable and convergent numerical scheme for the Poisson-Nernst-Planck system. *Mathematics of Computation*, **2021**, 90, 2071-2106	1.6	10
24	Structure-Preserving, Energy Stable Numerical Schemes for a Liquid Thin Film Coarsening Model. *SIAM Journal of Scientific Computing*, **2021**, 43, A1248-A1272	2.6	9
23	A positivity-preserving, energy stable scheme for a ternary Cahn-Hilliard system with the singular interfacial parameters. *Journal of Computational Physics*, **2021**, 442, 110451	4.1	9
22	A weakly nonlinear, energy stable scheme for the strongly anisotropic Cahn-Hilliard equation and its convergence analysis. *Journal of Computational Physics*, **2020**, 405, 109109	4.1	8
21	A diffuse domain method for two-phase flows with large density ratio in complex geometries. *Journal of Fluid Mechanics*, **2021**, 907,	3.7	8
20	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	4.1	7
19	An Energy Stable Finite Element Scheme for the Three-Component Cahn–Hilliard-Type Model for Macromolecular Microsphere Composite Hydrogels. *Journal of Scientific Computing*, **2021**, 87, 1	2.3	7
18	Convergence analysis of the Fast Subspace Descent method for convex optimization problems. *Mathematics of Computation*, **2020**, 89, 2249-2282	1.6	6
17	An energy stable, hexagonal finite difference scheme for the 2D phase field crystal amplitude equations. *Journal of Computational Physics*, **2016**, 321, 1026-1054	4.1	6
16	An improved error analysis for a second-order numerical scheme for the Cahn–Hilliard equation. *Journal of Computational and Applied Mathematics*, **2021**, 388, 113300	2.4	5
15	Doubly degenerate diffuse interface models of surface diffusion. *Mathematical Methods in the Applied Sciences*, **2021**, 44, 5385-5405	2.3	5
14	Discontinuous Galerkin derivative operators with applications to second-order elliptic problems and stability. *Mathematical Methods in the Applied Sciences*, **2015**, 38, 5160-5182	2.3	3
13	Coarsening of elastically stressed, strongly anisotropic driven thin films. *Physical Review E*, **2012**, 85, 061605	2.4	3
12	Simulations of Nonlinear Strongly Anisotropic, Misfitting Crystals and Thin Films. *Materials Research Society Symposia Proceedings*, **2008**, 1087, 20101		3

11	Effect of interfacial segregation on phase decomposition of a thin film on a patterned substrate. *Metals and Materials International*, **2003**, 9, 1-8	2.4	3
10	Doubly degenerate diffuse interface models of anisotropic surface diffusion. *Mathematical Methods in the Applied Sciences*, **2021**, 44, 5406-5417	2.3	3
9	Nonlinear Modeling and Simulation of Tumor Growth **2008**, 1-69		3
8	Global-in-time Gevrey regularity solution for a class of bistable gradient flows. *Discrete and Continuous Dynamical Systems - Series B*, **2016**, 21, 1689-1711	1.3	2
7	A second order energy stable scheme for the Cahn-Hilliard-Hele-Shaw equations. *Discrete and Continuous Dynamical Systems - Series B*, **2019**, 24, 149-182	1.3	2
6	Global-in-time Gevrey regularity solutions for the functionalized Cahn-Hilliard equation. *Discrete and Continuous Dynamical Systems - Series S*, **2020**, 13, 2211-2229	2.8	2
5	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	2.4	1
4	An iteration solver for the Poisson□Nernst□Planck system and its convergence analysis. *Journal of Computational and Applied Mathematics*, **2022**, 406, 114017	2.4	0
3	LECTURE NOTES ON NONLINEAR TUMOR GROWTH: MODELING AND SIMULATION. *Lecture Notes Series, Institute for Mathematical Sciences*, **2009**, 69-133	0.1	
2	Wetting transitions in a binary thin-film. *Metals and Materials International*, **2005**, 11, 487-497	2.4	
1	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	2.3	