James A Warren

List of Publications by Year
in descending order

72 papers	4,897 citations	109321 35 h-index	91884 69 g-index
73 all docs	73 docs citations	73 times ranked	4031 citing authors

#	Article	IF	Citations
1	Growth and form of spherulites. Physical Review E, 2005, 72, 011605.	2.1	415
2	A general mechanism of polycrystalline growth. Nature Materials, 2004, 3, 645-650.	27.5	313
3	A continuum model of grain boundaries. Physica D: Nonlinear Phenomena, 2000, 140, 141-150.	2.8	299
4	FiPy: Partial Differential Equations with Python. Computing in Science and Engineering, 2009, 11, 6-15.	1.2	298
5	Extending phase field models of solidification to polycrystalline materials. Acta Materialia, 2003, 51, 6035-6058.	7.9	288
6	Prediction of dendritic spacings in a directional-solidification experiment. Physical Review E, 1993, 47, 2702-2712.	2.1	221
7	Simultaneous grain boundary migration and grain rotation. Acta Materialia, 2006, 54, 1707-1719.	7.9	173
8	Grain boundaries exhibit the dynamics of glass-forming liquids. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 7735-7740.	7.1	164
9	Phase field modeling of electrochemistry. I. Equilibrium. Physical Review E, 2004, 69, 021603.	2.1	139
10	Phase Field Theory of Heterogeneous Crystal Nucleation. Physical Review Letters, 2007, 98, 035703.	7.8	136
11	An efficient algorithm for solving the phase field crystal model. Journal of Computational Physics, 2008, 227, 6241-6248.	3.8	127
12	Growth of 'dizzy dendrites' in a random field of foreign particles. Nature Materials, 2003, 2, 92-96.	27.5	126
13	Modelling polycrystalline solidification using phase field theory. Journal of Physics Condensed Matter, 2004, 16, R1205-R1235.	1.8	117
14	Modeling reactive wetting. Acta Materialia, 1998, 46, 3247-3264.	7.9	108
15	Phase field modeling of electrochemistry. II. Kinetics. Physical Review E, 2004, 69, 021604.	2.1	100
16	Stability of dendritic arrays. Physical Review A, 1990, 42, 3518-3525.	2.5	98
17	Simulation of the cell to plane front transition during directional solidification at high velocity. Journal of Crystal Growth, 1999, 200, 583-591.	1.5	98
18	Thermodynamics of grain boundary premelting in alloys. I. Phase-field modeling. Acta Materialia, 2009, 57, 3771-3785.	7.9	97

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19	The phase-field method: simulation of alloy dendritic solidification during recalescence. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1996, 27, 657-669.	2.2	93
20	A Parallel 3D Dendritic Growth Simulator Using the Phase-Field Method. Journal of Computational Physics, 2002, 177, 264-283.	3.8	92
21	Phase field approach to heterogeneous crystal nucleation in alloys. Physical Review B, 2009, 79, .	3.2	81
22	Phase-field modeling of crystal nucleation in undercooled liquids â€“ A review. Progress in Materials Science, 2019, 106, 100569.	32.8	78
23	Phase field theory of crystal nucleation and polycrystalline growth: A review. Journal of Materials Research, 2006, 21, 309-319.	2.6	67
24	Nonequilibrium pattern formation in the crystallization of polymer blend films. Physical Review E, 2002, 65, 042802.	2.1	65
25	Characterization of atomic motion governing grain boundary migration. Physical Review B, 2006, 74, .	3.2	59
26	Phase field model of premelting of grain boundaries. Physica D: Nonlinear Phenomena, 2002, 164, 202-212.	2.8	56
27	Diffuse-interface theory for structure formation and release behavior in controlled drug release systems. Acta Biomaterialia, 2007, 3, 851-864.	8.3	53
28	Modeling the formation and dynamics of polycrystals in 3D. Physica A: Statistical Mechanics and Its Applications, 2005, 356, 127-132.	2.6	52
29	Evolving the Materials Genome: How Machine Learning Is Fueling the Next Generation of Materials Discovery. Annual Review of Materials Research, 2020, 50, 1-25.	9.3	49
30	Modeling grain boundaries using a phase-field technique. Journal of Crystal Growth, 2000, 211, 18-20.	1.5	48
31	Sharp interface limit of a phase-field model of crystal grains. Physical Review E, 2001, 63, 051605.	2.1	47
32	Phase field approach with anisotropic interface energy and interface stresses: Large strain formulation. Journal of the Mechanics and Physics of Solids, 2016, 91, 94-125.	4.8	42
33	Atomic motion during the migration of general [001] tilt grain boundaries in Ni. Acta Materialia, 2007, 55, 4527-4533.	7.9	40
34	A phase field model of the impingement of solidifying particles. Physica A: Statistical Mechanics and Its Applications, 1998, 261, 159-166.	2.6	38
35	Ostwald ripening and coalescence of a binary alloy in two dimensions using a phase-field model. Modelling and Simulation in Materials Science and Engineering, 1996, 4, 215-229.	2.0	37
36	Solution of a field theory model of frontal photopolymerization. Physical Review E, 2005, 72, 021801.	2.1	37

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37	Phase-field models for eutectic solidification. Jom, 2004, 56, 34-39.	1.9	31
38	Microstructure-based knowledge systems for capturing process-structure evolution linkages. Current Opinion in Solid State and Materials Science, 2017, 21, 129-140.	11.5	31
39	The Materials Genome Initiative and artificial intelligence. MRS Bulletin, 2018, 43, 452-457.	3.5	31
40	The Strong Influence of Internal Stresses on the Nucleation of a Nanosized, Deeply Undercooled Melt at a Solidâ€"Solid Phase Interface. Nano Letters, 2015, 15, 2298-2303.	9.1	30
41	Polycrystalline patterns in far-from-equilibrium freezing: a phase field study. Philosophical Magazine, 2006, 86, 3757-3778.	1.6	29
42	Modeling solvent evaporation during the manufacture of controlled drugâ€release coatings and the impact on release kinetics. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2009, 90B, 688-699.	3.4	28
43	Rule of thumb breaks down. Nature Materials, 2006, 5, 595-596.	27.5	26
44	Modeling the early stages of reactive wetting. Physical Review E, 2010, 82, 051601.	2.1	26
45	Phase field benchmark problems for dendritic growth and linear elasticity. Computational Materials Science, 2018, 149, 336-347.	3.0	25
46	A diffuse-interface model of reactive wetting with intermetallic formation. Acta Materialia, 2012, 60, 3799-3814.	7.9	23
47	Effect of phase change and solute diffusion on spreading on a dissolving substrate. Acta Materialia, 2009, 57, 6022-6036.	7.9	21
48	Phase-field model of crystal grains. Journal of Crystal Growth, 2001, 225, 282-288.	1.5	20
49	Lateral deformation of diffusion couples. Acta Materialia, 2005, 53, 1995-2008.	7.9	19
50	Liquid droplet dynamics and complex morphologies in vaporâ€"liquidâ€"solid nanowire growth. Journal of Materials Research, 2011, 26, 2186-2198.	2.6	18
51	Making materials science and engineering data more valuable research products. Integrating Materials and Manufacturing Innovation, 2014, 3, 292-308.	2.6	18
52	Stability and topological transformations of liquid droplets on vapor-liquid-solid nanowires. Journal of Applied Physics, 2012, 111, .	2.5	16
53	Controlling the accuracy of unconditionally stable algorithms in the Cahn-Hilliard equation. Physical Review E, 2007, 75, 017702.	2.1	15
54	Modeling microstructure development and release kinetics in controlled drug release coatings**The mention of commercial products, their source, or their use in connection with the material reported herein is not to be construed as either an actual or implied endorsement by either the US Food and Drug Administration or the National Institute of Standards and Technology.. Journal of Pharmaceutical Sciences, 2009, 98, 169-186.	3.3	15

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55	Predicting microstructure development during casting of drug-eluting coatings. Acta Biomaterialia, 2011, 7, 604-613.	8.3	14
56	Evolution of a Materials Data Infrastructure. Jom, 2018, 70, 1652-1658.	1.9	14
57	Numerical modeling of diffusion-induced deformation. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2006, 37, 2701-2714.	2.2	12
58	The Effect of Substrate Material on Silver Nanoparticle Antimicrobial Efficacy. Journal of Nanoscience and Nanotechnology, 2010, 10, 8456-8462.	0.9	9
59	Materials informatics: Facilitating the integration of data-driven materials research with education. Jom, 2008, 60, 51-52.	1.9	8
60	Diffuse Interface Methods for Modeling Drug-Eluting Stent Coatings. Annals of Biomedical Engineering, 2016, 44, 548-559.	2.5	8
61	Topological defects in two-dimensional orientation-field models for grain growth. Physical Review E, 2017, 96, 052802.	2.1	8
62	A Controlled Vocabulary and Metadata Schema for Materials Science Data Discovery. Data Science Journal, 2021, 20, .	1.3	7
63	PFHub: The Phase-Field Community Hub. Journal of Open Research Software, 2019, 7, 29.	5.9	7
64	Phase-field model for anisotropic grain growth. Acta Materialia, 2022, 237, 118169.	7.9	7
65	A structure-sensitive continuum model of arterial drug deposition. International Journal of Heat and Mass Transfer, 2015, 82, 468-478.	4.8	6
66	Phase field benchmark problems targeting fluid flow and electrochemistry. Computational Materials Science, 2020, 176, 109548.	3.0	4
67	Implementing a Registry Federation for Materials Science Data Discovery. Data Science Journal, 2021, 20, .	1.3	4
68	Co-Based superalloy morphology evolution: A phase field study based on experimental thermodynamic and kinetic data. Acta Materialia, 2022, 233, 117978.	7.9	4
69	Materials science in the information age. Technology in Society, 1996, 18, 151-164.	9.4	1
70	NSF NSDL Materials Digital Library & MSE Education. Materials Research Society Symposia Proceedings, 2005, 909, 1.	0.1	1
71	(Invited) The Materials Genome and Electrochemistry. ECS Meeting Abstracts, 2019, , .	0.0	0
72	Microstructure-based knowledge systems for capturing process-structure evolution linkages. Acta Materialia, 2017, 21, .	7.9	0