Ingo Steinbach

List of Publications by Year in Descending Order

140 papers	6,260 citations	40 h-index	77 g-index
152 ext. papers	7,004 ext. citations	3.7 avg, IF	6.31 L-index

#	Paper	IF	Citations
140	Fundamentals: alloy thermodynamics and kinetics of diffusion **2022**, 21-40		
139	Model for non-equilibrium vacancy diffusion applied to study the Kirkendall effect in high-entropy alloys. *Acta Materialia*, **2022**, 117966	8.4	0
138	Automated assessment of a kinetic database for fcc CoCrFeMnNi high entropy alloys. *Modelling and Simulation in Materials Science and Engineering*, **2021**, 29, 055007	2	2
137	Pair-exchange diffusion model for multicomponent alloys revisited. *Materialia*, **2021**, 16, 101047	3.2	4
136	Automated image analysis for quantification of materials microstructure evolution. *Modelling and Simulation in Materials Science and Engineering*, **2021**, 29, 055012	2	1
135	Microstructure analyses and phase-field simulation of partially divorced eutectic solidification in hypoeutectic Mg-Al Alloys. *Journal of Magnesium and Alloys*, **2021**,	8.8	1
134	Grain boundary energy landscape from the shape analysis of synthetically stabilized embedded grains. *Computational Materials Science*, **2021**, 193, 110384	3.2	2
133	Martensitic transformation in a two-dimensional polycrystalline shape memory alloys using a multi-phase-field elasticity model based on pairwise rank-one convexified energies at small strain. *Proceedings in Applied Mathematics and Mechanics*, **2021**, 20, e202000200	0.2	0
132	Numerical Study of Epitaxial Growth after Partial Remelting during Selective Electron Beam Melting in the Context of NiAl. *Metals*, **2021**, 11, 2012	2.3	0
131	Roadmap on multiscale materials modeling. *Modelling and Simulation in Materials Science and Engineering*, **2020**, 28, 043001	2	40
130	Role of inclination dependence of grain boundary energy on the microstructure evolution during grain growth. *Acta Materialia*, **2020**, 188, 641-651	8.4	16
129	Quantum-Phase-Field: From de Broglie-Bohm Double-Solution Program to Doublon Networks. *Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences*, **2020**, 75, 155-170	1.4	1
128	Effect of γ′ precipitate size on hardness and creep properties of Ni-base single crystal superalloys: Experiment and simulation. *Materialia*, **2020**, 12, 100692	3.2	9
127	45-degree rafting in Ni-based superalloys: A combined phase-field and strain gradient crystal plasticity study. *International Journal of Plasticity*, **2020**, 128, 102659	7.6	12
126	Controlling bubble coalescence in metallic foams: A simple phase field-based approach. *Computational Materials Science*, **2020**, 173, 109437	3.2	5
125	Multi-phase-field simulation of microstructure evolution in metallic foams. *Scientific Reports*, **2020**, 10, 19987	4.9	2
124	Role of coherency loss on rafting behavior of Ni-based superalloys. *Computational Materials Science* , **2020**, 171, 109279	3.2	17

123	Comparative study of different anisotropy and potential formulations of phase-field models for dendritic solidification. *Computational Materials Science*, **2019**, 170, 109197	3.2	4
122	Phase-field simulation of martensite microstructure in low-carbon steel. *Acta Materialia*, **2019**, 175, 415-425	8.4	12
121	Combined phase-field crystal plasticity simulation of P- and N-type rafting in Co-based superalloys. *Acta Materialia*, **2019**, 175, 21-34	8.4	29
120	On Crystal Mosaicity in Single Crystal Ni-Based Superalloys. *Crystals*, **2019**, 9, 149	2.3	17
119	First Evidence for Mechanism of Inverse Ripening from In-situ TEM and Phase-Field Study of Precipitation in an Al-Li Alloy. *Scientific Reports*, **2019**, 9, 3981	4.9	9
118	Solute trapping in non-equilibrium solidification: A comparative model study. *Materialia*, **2019**, 6, 100256	3.2	7
117	Concentration-dependent atomic mobilities in FCC CoCrFeMnNi high-entropy alloys. *Acta Materialia*, **2019**, 166, 357-370	8.4	40
116	Computationally Efficient Phase-field Simulation Studies Using RVE Sampling and Statistical Analysis. *Computational Materials Science*, **2018**, 147, 204-216	3.2	11
115	Multi-phase-field method for surface tension induced elasticity. *Physical Review B*, **2018**, 97,	3.3	7
114	Phase-field modeling of pores and precipitates in polycrystalline systems. *Modelling and Simulation in Materials Science and Engineering*, **2018**, 26, 065003	2	5
113	Numerical Benchmark of Phase-Field Simulations with Elastic Strains: Precipitation in the Presence of Chemo-Mechanical Coupling. *Computational Materials Science*, **2018**, 155, 541-553	3.2	12
112	Quantum-Phase-Field Concept of Matter: Emergent Gravity in the Dynamic Universe. *Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences*, **2017**, 72, 51-58	1.4	2
111	Parallel multiphase field simulations with OpenPhase. *Computer Physics Communications*, **2017**, 215, 173-187	4.2	29
110	On the evolution of cast microstructures during processing of single crystal Ni-base superalloys using a Bridgman seed technique. *Materials and Design*, **2017**, 128, 98-111	8.1	28
109	On the numerical evaluation of local curvature for diffuse interface models of microstructure evolution. *Procedia Computer Science*, **2017**, 108, 1852-1862	1.6	6
108	Multi-phase-field model for surface and phase-boundary diffusion. *Physical Review E*, **2017**, 96, 012801	2.4	9
107	Topological phase inversion after long-term thermal exposure of nickel-base superalloys: Experiment and phase-field simulation. *Acta Materialia*, **2017**, 124, 151-158	8.4	42
106	Modeling of Gibbs energies of pure elements down to 0 K using segmented regression. *Calphad: Computer Coupling of Phase Diagrams and Thermochemistry*, **2016**, 55, 165-180	1.9	30

105	Phase-field study of zener drag and pinning of cylindrical particles in polycrystalline materials. *Acta Materialia*, **2016**, 106, 59-65	8.4	31
104	Phase-field simulation of liquid phase migration in the WC□Co system during liquid phase sintering. *International Journal of Materials Research*, **2016**, 107, 309-314	0.5	4
103	Atomistically Informed Extended Gibbs Energy Description for Phase-Field Simulation of Tempering of Martensitic Steel. *Materials*, **2016**, 9,	3.5	5
102	Microstructure Design of Tempered Martensite by Atomistically Informed Full-Field Simulation: From Quenching to Fracture. *Materials*, **2016**, 9,	3.5	8
101	Modelling of flow behaviour and dynamic recrystallization during hot deformation of MS-W 1200 using the phase field framework. *MATEC Web of Conferences*, **2016**, 80, 01003	0.3	1
100	Full-field simulation of solidification and forming of polycrystals. *MATEC Web of Conferences*, **2016**, 80, 02014	0.3	1
99	Phase field modeling of intercalation kinetics: a finite interface dissipation approach. *MRS Communications*, **2016**, 6, 270-282	2.7	
98	Geometrical grounds of mean field solutions for normal grain growth. *Acta Materialia*, **2015**, 90, 252-258	8.4	29
97	Large deformation framework for phase-field simulations at the mesoscale. *Computational Materials Science*, **2015**, 108, 367-373	3.2	5
96	Texture evolution in deformed AZ31 magnesium sheets: Experiments and phase-field study. *Computational Materials Science*, **2015**, 104, 193-199	3.2	14
95	From wetting to melting along grain boundaries using phase field and sharp interface methods. *Computational Materials Science*, **2015**, 108, 293-300	3.2	3
94	Divorced Eutectic Solidification of Mg-Al Alloys. *Jom*, **2015**, 67, 1805-1811	2.1	14
93	Dual-scale phase-field simulation of Mg-Al alloy solidification. *IOP Conference Series: Materials Science and Engineering*, **2015**, 84, 012069	0.4	5
92	Modeling the flow in diffuse interface methods of solidification. *Physical Review E*, **2015**, 92, 023303	2.4	22
91	Gamma-channel stabilization mechanism in Ni-base superalloys. *Philosophical Magazine Letters*, **2015**, 95, 519-525	1	8
90	A continuum mechanical, bi-phasic, two-scale model for thermal driven phase transition during solidification. *Proceedings in Applied Mathematics and Mechanics*, **2015**, 15, 409-410	0.2	2
89	Primary combination of phase-field and discrete dislocation dynamics methods for investigating athermal plastic deformation in various realistic Ni-base single crystal superalloy microstructures. *Modelling and Simulation in Materials Science and Engineering*, **2015**, 23, 075003	2	7
88	Simulations of the Eutectic Transformations in the Platinum□Carbon System. *International Journal of Thermophysics*, **2015**, 36, 3366-3383	2.1	

87	Incorporating the CALPHAD sublattice approach of ordering into the phase-field model with finite interface dissipation. *Acta Materialia*, **2015**, 88, 156-169	8.4	67
86	Tertiary dendritic instability in late stage solidification of Ni-based superalloys. *Modelling and Simulation in Materials Science and Engineering*, **2014**, 22, 025026	2	4
85	Phase-field modeling of grain-boundary premelting using obstacle potentials. *Physical Review E*, **2014**, 90, 012401	2.4	18
84	Phase-field modeling for 3D grain growth based on a grain boundary energy database. *Modelling and Simulation in Materials Science and Engineering*, **2014**, 22, 034004	2	43
83	Large scale 3-D phase-field simulation of coarsening in Ni-base superalloys. *MATEC Web of Conferences*, **2014**, 14, 11001	0.3	5
82	Multi-Scale and Multi-Component Approach for Solidification Processes. *Proceedings in Applied Mathematics and Mechanics*, **2014**, 14, 465-466	0.2	
81	DFT-supported phase-field study on the effect of mechanically driven fluxes in Ni4Ti3precipitation. *Modelling and Simulation in Materials Science and Engineering*, **2014**, 22, 034003	2	14
80	Large strain elasto-plasticity for diffuse interface models. *Modelling and Simulation in Materials Science and Engineering*, **2014**, 22, 034008	2	16
79	Why Solidification? Why Phase-Field?. *Jom*, **2013**, 65, 1096-1102	2.1	45
78	Simulation of viscous sintering using the lattice Boltzmann method. *Modelling and Simulation in Materials Science and Engineering*, **2013**, 21, 025003	2	14
77	Diffuse-interface modeling of solute trapping in rapid solidification: Predictions of the hyperbolic phase-field model and parabolic model with finite interface dissipation. *Acta Materialia*, **2013**, 61, 4155-4168	8.4	50
76	Solutal gradients in strained equilibrium. *Philosophical Magazine Letters*, **2013**, 93, 680-687	1	14
75	Simulating Mobile Dendrites in a Flow. *Procedia Computer Science*, **2013**, 18, 2512-2520	1.6	30
74	Viscous coalescence of droplets: A lattice Boltzmann study. *Physics of Fluids*, **2013**, 25, 052101	4.4	27
73	Phase-Field Model for Microstructure Evolution at the Mesoscopic Scale. *Annual Review of Materials Research*, **2013**, 43, 89-107	12.8	171
72	A permeation model for the electrochemical interface. *Modelling and Simulation in Materials Science and Engineering*, **2013**, 21, 074006	2	5
71	Pearlite revisited. *Continuum Mechanics and Thermodynamics*, **2012**, 24, 665-673	3.5	5
70	Microsegregation and Secondary Phase Formation During Directional Solidification of the Single-Crystal Ni-Based Superalloy LEK94. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2012**, 43, 5153-5164	2.3	11

69	Phase-field model with finite interface dissipation. *Acta Materialia*, **2012**, 60, 2689-2701	8.4	113
68	3-D phase-field simulation of grain growth: Topological analysis versus mean-field approximations. *Acta Materialia*, **2012**, 60, 2719-2728	8.4	72
67	Phase-field model with finite interface dissipation: Extension to multi-component multi-phase alloys. *Acta Materialia*, **2012**, 60, 2702-2710	8.4	86
66	Phase-field modelling of microstructure evolution in solids: Perspectives and challenges. *Current Opinion in Solid State and Materials Science*, **2011**, 15, 87-92	12	41
65	Simulation of the External Pressure Influence on the Micro-Structural Evolution of a Single Crystal Ni-Based Superalloy. *Advanced Materials Research*, **2011**, 278, 247-252	0.5	
64	Stability and dynamics of droplets on patterned substrates: insights from experiments and lattice Boltzmann simulations. *Journal of Physics Condensed Matter*, **2011**, 23, 184112	1.8	24
63	Contact angle dependence of the velocity of sliding cylindrical drop on flat substrates. *Europhysics Letters*, **2011**, 95, 44003	1.6	23
62	On the effect of superimposed external stresses on the nucleation and growth of Ni4Ti3 particles: A parametric phase field study. *Acta Materialia*, **2011**, 59, 3287-3296	8.4	43
61	An analytical study of the static state of multi-junctions in a multi-phase field model. *Physica D: Nonlinear Phenomena*, **2011**, 240, 382-388	3.3	16
60	Morphologies of small droplets on patterned hydrophobic substrates. *Modelling and Simulation in Materials Science and Engineering*, **2011**, 19, 045005	2	8
59	Phase-field simulation of diffusion couples in the Ni□Al system. *International Journal of Materials Research*, **2011**, 102, 371-380	0.5	47
58	Second Symposium on Phase-Field Modelling in Materials Science. *International Journal of Materials Research*, **2010**, 101, 455-455	0.5	2
57	Roughness-gradient□nduced spontaneous motion of droplets on hydrophobic surfaces: A lattice Boltzmann study. *Europhysics Letters*, **2010**, 89, 26006	1.6	41
56	Small droplets on superhydrophobic substrates. *Physical Review E*, **2010**, 81, 051606	2.4	43
55	Multi-phase field study of the equilibrium state of multi-junctions. *International Journal of Materials Research*, **2010**, 101, 480-485	0.5	12
54	Efficient and reliable finite element techniques for phase field models. *International Journal of Materials Research*, **2010**, 101, 498-502	0.5	1
53	Atomic mobilities and diffusivities in the fcc, L12 and B2 phases of the Ni-Al system. *International Journal of Materials Research*, **2010**, 101, 1461-1475	0.5	68
52	Phase-field model with plastic flow for grain growth in nanocrystalline material. *Philosophical Magazine*, **2010**, 90, 485-499	1.6	8

51	Multiscale simulations on the grain growth process in nanostructured materials. *International Journal of Materials Research*, **2010**, 101, 1332-1338	0.5	14
50	Modeling of Hot Ductility During Solidification of Steel Grades in Continuous Casting – Part I. *Advanced Engineering Materials*, **2010**, 12, 94-100	3.5	13
49	Modelling of Hot Ductility during Solidification of Steel Grades in Continuous Casting – Part II. *Advanced Engineering Materials*, **2010**, 12, 101-109	3.5	13
48	Diffusivities of an Al–Fe–Ni melt and their effects on the microstructure during solidification. *Acta Materialia*, **2010**, 58, 3664-3675	8.4	75
47	Grain Growth Simulations Including Particle Pinning Using the Multiphase-field Concept. *ISIJ International*, **2009**, 49, 1024-1029	1.7	44
46	Quantitative simulations of microstructure evolution in single crystal superalloys during solution heat treatment. *International Heat Treatment and Surface Engineering*, **2009**, 3, 40-44		4
45	Upgrading CALPHAD to microstructure simulation: the phase-field method. *International Journal of Materials Research*, **2009**, 100, 128-134	0.5	34
44	On the formation and growth of Mo-rich Laves phase particles during long-term creep of a 12% chromium tempered martensite ferritic steel. *Scripta Materialia*, **2009**, 61, 1068-1071	5.6	76
43	Numerical Determination of Heat Distribution and Castability Simulations of as Cast Mg–Al Alloys. *Advanced Engineering Materials*, **2009**, 11, 162-168	3.5	8
42	Phase-field modelling of as-cast microstructure evolution in nickel-based superalloys. *Acta Materialia*, **2009**, 57, 5862-5875	8.4	59
41	Pattern formation in constrained dendritic growth with solutal buoyancy. *Acta Materialia*, **2009**, 57, 2640-2645	8.4	66
40	Dendritic solidification in undercooled Ni–Zr–Al melts: Experiments and modeling. *Acta Materialia*, **2009**, 57, 6166-6175	8.4	41
39	Virtual dilatometer curves and effective Young's modulus of a 3D multiphase structure calculated by the phase-field method. *Computational Materials Science*, **2009**, 45, 589-592	3.2	22
38	Phase-field models in materials science. *Modelling and Simulation in Materials Science and Engineering*, **2009**, 17, 073001	2	762
37	Grain Refinement of TiAl Alloys by Inoculation. *Materials Research Society Symposia Proceedings*, **2008**, 1128, 30201		
36	Phase-Field Simulation of Solidification and Solid-State Transformations in Multicomponent Steels. *Steel Research International*, **2008**, 79, 608-616	1.6	35
35	Microstructure evolution and phase transitions in metals simulated by the multi-phase-field method. *Revue De Metallurgie*, **2008**, 105, 637-640		
34	Effect of interface anisotropy on spacing selection in constrained dendrite growth. *Acta Materialia*, **2008**, 56, 4965-4971	8.4	54

33	The influence of lattice strain on pearlite formation in Fe□. *Acta Materialia*, **2007**, 55, 4817-4822	8.4	51
32	Phase-field simulation of rapid crystallization of silicon on substrate. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2007**, 449-451, 95-98	5.3	12
31	CALPHAD and Phase-Field Modeling: A Successful Liaison. *Journal of Phase Equilibria and Diffusion*, **2007**, 28, 101-106	1	66
30	Simulation of Ideal Grain Growth Using the Multi-Phase-Field Model. *Materials Science Forum*, **2007**, 558-559, 1177-1181	0.4	6
29	Phase-Field Simulation of Cooperative Growth of Pearlite. *Materials Science Forum*, **2007**, 558-559, 1013-1020	0.4	4
28	Controlling Microstructure in Magnesium Alloys: A Combined Thermodynamic, Experimental and Simulation Approach. *Advanced Engineering Materials*, **2006**, 8, 241-247	3.5	41
27	Multiphase-field approach for multicomponent alloys with extrapolation scheme for numerical application. *Physical Review E*, **2006**, 73, 066122	2.4	328
26	Interaction of Interdendritic Convection and Dendritic Primary Spacing: Phase-Field Simulation and Analytical Modeling. *Materials Science Forum*, **2006**, 508, 145-150	0.4	12
25	Phase field simulation of equiaxed solidification in technical alloys. *Acta Materialia*, **2006**, 54, 2697-2704	8.4	180
24	The role of carbon diffusion in ferrite on the kinetics of cooperative growth of pearlite: A multi-phase field study. *Acta Materialia*, **2006**, 54, 3665-3672	8.4	85
23	Multi phase field model for solid state transformation with elastic strain. *Physica D: Nonlinear Phenomena*, **2006**, 217, 153-160	3.3	182
22	Transient growth and interaction of equiaxed dendrites. *Journal of Crystal Growth*, **2005**, 275, 624-638	1.6	31
21	Investigation of eutectic island formation in SX superalloys. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 413-414, 267-271	5.3	36
20	Numerical simulations for silicon crystallization processes□examples from ingot and ribbon casting. *Solar Energy Materials and Solar Cells*, **2002**, 72, 59-68	6.4	16
19	Simulation of the crystallisation of silicon ribbons on substrate. *Solar Energy Materials and Solar Cells*, **2002**, 72, 201-208	6.4	10
18	2D and 3D phase-field simulations of lamella and fibrous eutectic growth. *Journal of Crystal Growth*, **2002**, 237-239, 154-158	1.6	43
17	History effects during the selection of primary dendrite spacing. Comparison of phase-field simulations with experimental observations. *Journal of Crystal Growth*, **2002**, 237-239, 149-153	1.6	42
16	Simulation of the □transformation using the phase-field method. *Steel Research = Archiv F□r Das Eisenh□ttenwesen*, **2001**, 72, 354-360		30

15	Dual Scale Simulation of Grain Growth Using a Multi Phase Field Model. *Materials Research Society Symposia Proceedings*, **2001**, 677, 7141		1
14	Phase Field Modeling of the Growth of mc-Silicon from the Melt. *Solid State Phenomena*, **1999**, 67-68, 453-458	0.4	1
13	Simulation of convection and ripening in a binary alloy mush using the phase-field method. *Acta Materialia*, **1999**, 47, 3663-3678	8.4	92
12	A generalized field method for multiphase transformations using interface fields. *Physica D: Nonlinear Phenomena*, **1999**, 134, 385-393	3.3	383
11	Three-dimensional modeling of equiaxed dendritic growth on a mesoscopic scale. *Acta Materialia*, **1999**, 47, 971-982	8.4	57
10	Modeling Melt Convection in Phase-Field Simulations of Solidification. *Journal of Computational Physics*, **1999**, 154, 468-496	4.1	467
9	The multiphase-field model with an integrated concept for modelling solute diffusion. *Physica D: Nonlinear Phenomena*, **1998**, 115, 73-86	3.3	316
8	Modeling of Free Surfaces in Casting Processes **1998**, 168-186		
7	Modeling of Free Surfaces in Casting Processes. *Notes on Numerical Fluid Mechanics*, **1998**, 168-186		2
6	Macroscopic and microscopic modeling of the growth of YBaCuO bulk material. *IEEE Transactions on Applied Superconductivity*, **1997**, 7, 1739-1742	1.8	3
5	The modelling of Ostwald-ripening during non-isothermal heat treatments resulting in temperature dependent matrix solubility of the precipitate forming elements: A further development of the LSW-theory. *Computational Materials Science*, **1996**, 7, 94-97	3.2	4
4	A phase field concept for multiphase systems. *Physica D: Nonlinear Phenomena*, **1996**, 94, 135-147	3.3	646
3	Finite element integration for the control volume method. *Communications in Numerical Methods in Engineering*, **1996**, 12, 543-555		9
2	Microstructural analysis of the crystallization of silicon ribbons produced by the RGS process		5
1	Dendritic Solidification in the Diffuse Regime and under the Influence of Buoyancy-Driven Melt Convection	373	385