

Nele Moelans

List of Publications by Year in descending order

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96
papers

3,383
citations

236833

25
h-index

149623

56
g-index

101
all docs

101
docs citations

101
times ranked

2210
citing authors

#	ARTICLE	IF	CITATIONS
1	Study of the interfacial reactions controlling the spreading of Al on Ni. Applied Surface Science, 2022, 571, 151272. Multi-phase field simulation of Al Ni	3.1	6
2	Phase field simulation of Al Ni intermetallic growth at	3.6	12
3	Phase field simulations of FCC to BCC phase transformation in (Al)CrFeNi medium entropy alloys. Materials Theory, 2022, 6, .	2.2	7
4	New phase-field model for polycrystalline systems with anisotropic grain boundary properties. Materials and Design, 2022, 217, 110592.	3.3	10
5	The effect of voids on boundary migration during recrystallization in additive manufactured samples: a phase field study. Scripta Materialia, 2022, 214, 114675.	2.6	2
6	Towards more realistic simulations of microstructural evolution in oxidic systems. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2022, 77, 102402.	0.7	1
7	An efficient and quantitative phase-field model for elastically heterogeneous two-phase solids based on a partial rank-one homogenization scheme. International Journal of Solids and Structures, 2022, 250, 111709.	1.3	3
8	Influence of geometrical alignment of the deformation microstructure on local migration of grain boundaries during recrystallization: A phase-field study. Scripta Materialia, 2021, 191, 116-119.	2.6	12
9	A phase-field investigation of recrystallization boundary migration into heterogeneous deformation energy fields: Effects of dislocation boundary sharpness. IOP Conference Series: Materials Science and Engineering, 2021, 1121, 012013.	0.3	3
10	A grand-potential based phase-field approach for simulating growth of intermetallic phases in multicomponent alloy systems. Acta Materialia, 2021, 206, 116630.	3.8	14
11	Variant selection of primary secondary extension twin pairs in magnesium: An analytical calculation study. Acta Materialia, 2021, 219, 117221.	3.8	9
12	Effects of dislocation boundary spacings and stored energy on boundary migration during recrystallization: A phase-field analysis. Acta Materialia, 2021, 221, 117377.	3.8	9
13	Effects of LaAlO ₃ and La ₂ O ₂ S inclusions on the initialization of localized corrosion of pipeline steels in NaCl solution. Scripta Materialia, 2020, 177, 151-156.	2.6	38
14	Combining multi-phase field simulation with neural network analysis to unravel thermomigration accelerated growth behavior of Cu ₆ Sn ₅ IMC at cold side Cu-Sn interface. International Journal of Mechanical Sciences, 2020, 184, 105843.	3.6	27
15	Integration of machine learning with phase field method to model the electromigration induced Cu ₆ Sn ₅ IMC growth at anode side Cu/Sn interface. Journal of Materials Science and Technology, 2020, 59, 203-219.	5.6	25
16	Phase field analysis of the growth of fast and slow crystallites. European Physical Journal: Special Topics, 2020, 229, 433-437.	1.2	5
17	Phase-field study of IMC growth in Sn-Cu/Cu solder joints including elastoplastic effects. Acta Materialia, 2020, 188, 241-258.	3.8	27
18	Phase field model derivation for rapid crystal growth in polycrystalline alloys. European Physical Journal: Special Topics, 2020, 229, 453-458.	1.2	5

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37	Three-dimensional phase-field simulation of microstructural evolution in three-phase materials with different interfacial energies and different diffusivities. <i>Journal of Materials Science</i> , 2017, 52, 13852-13867.	1.7	17
38	Investigation of Reactive Origin for Attachment of Cu Droplets to Solid Particles. <i>Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science</i> , 2017, 48, 2459-2468.	1.0	6
39	Microstructure and mechanical characterization of cast Mg-Ca-Si alloys. <i>Journal of Alloys and Compounds</i> , 2017, 694, 767-776.	2.8	11
40	Effect of strong nonuniformity in grain boundary energy on 3-D grain growth behavior: A phase-field simulation study. <i>Computational Materials Science</i> , 2017, 127, 67-77.	1.4	44
41	Microstructure and degradation performance of biodegradable Mg-Si-Sr implant alloys. <i>Materials Science and Engineering C</i> , 2017, 71, 25-34.	3.8	37
42	Investigation of High-Temperature Slag/Copper/Spinel Interactions. <i>Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science</i> , 2016, 47, 3421-3434.	1.0	20
43	Effect of volume fractions on microstructure evolution in isotropic volume-conserved two-phase alloys: A phase-field study. <i>Computational Materials Science</i> , 2016, 125, 297-308.	1.4	14
44	Study of Mn absorption by complex oxide inclusions in Al Ti Mg killed steels. <i>Acta Materialia</i> , 2016, 118, 8-16.	3.8	54
45	Sessile drop evaluation of high temperature copper/spinel and slag/spinel interactions. <i>Transactions of Nonferrous Metals Society of China</i> , 2016, 26, 2770-2783.	1.7	13
46	Investigation of the diffusion behavior in Sn-xAg-yCu/Cu solid state diffusion couples. <i>Journal of Alloys and Compounds</i> , 2016, 686, 794-802.	2.8	9
47	Phase field simulation study of the attachment of metallic droplets to solid particles in liquid slags based on real slagâ€“spinel micrographs. <i>Computational Materials Science</i> , 2016, 118, 269-278.	1.4	5
48	Phase field simulation study of the dissolution behavior of Al ₂ O ₃ into CaOâ€“Al ₂ O ₃ â€“SiO ₂ slags. <i>Computational Materials Science</i> , 2016, 119, 9-18.	1.4	13
49	Investigation of diffusion behavior in Cuâ€“Sn solid state diffusion couples. <i>Journal of Alloys and Compounds</i> , 2016, 661, 282-293.	2.8	51
50	Origin and sedimentation of Cu-droplets sticking to spinel solids in pyrometallurgical slags. <i>Materials Science and Technology</i> , 2016, 32, 1911-1924.	0.8	30
51	Comments on a numerical method to determine interdiffusion coefficients of Cu ₆ Sn ₅ and Cu ₃ Sn intermetallic compounds. <i>Intermetallics</i> , 2016, 69, 95-97.	1.8	6
52	Identification and description of intermetallic compounds in Mgâ€“Siâ€“Sr cast and heat-treated alloys. <i>Journal of Alloys and Compounds</i> , 2016, 669, 123-133.	2.8	8
53	Isothermal Crystal Growth Behavior of CaSiO ₃ in Ternary Oxide Melts. Wuji Cailiao Xuebao/ <i>Journal of Inorganic Materials</i> , 2016, 31, 547.	0.6	2
54	Phase field modelling of the attachment of metallic droplets to solid particles in liquid slags: Influence of particle characteristics. <i>Acta Materialia</i> , 2015, 101, 172-180.	3.8	9

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55	A phase-field simulation study of irregular grain boundary migration during recrystallization. IOP Conference Series: Materials Science and Engineering, 2015, 89, 012037.	0.3	10
56	Microstructure simulation of grain growth in Cu through silicon vias using phase-field modeling. Microelectronics Reliability, 2015, 55, 765-770.	0.9	13
57	Wetting behaviour of Cu based alloys on spinel substrates in pyrometallurgical context. Materials Science and Technology, 2015, 31, 1925-1933.	0.8	18
58	A quantitative phase-field model for two-phase elastically inhomogeneous systems. Computational Materials Science, 2015, 99, 81-95.	1.4	25
59	Phase-field simulations of the interaction between a grain boundary and an evolving second-phase particle. Philosophical Magazine Letters, 2015, 95, 202-210.	0.5	15
60	Phase field modelling of the attachment of metallic droplets to solid particles in liquid slags: Influence of interfacial energies and slag supersaturation. Computational Materials Science, 2015, 108, 348-357.	1.4	15
61	Influence of the solubility range of intermetallic compounds on their growth behavior in hetero-junctions. Journal of Alloys and Compounds, 2015, 635, 289-299.	2.8	12
62	Correlation between Mechanical Behaviour and Microstructure in the Mg-Ca-Si-Sr System for Degradable Biomaterials Based on Thermodynamic Calculations. , 2015, , 431-436.		0
63	Three-dimensional phase-field simulation of microstructural evolution in three-phase materials with different diffusivities. Journal of Materials Science, 2014, 49, 7066-7072.	1.7	11
64	Microstructure simulation of grain growth in Cu Through Silicon Via using phase-field modeling. , 2014, , .		0
65	Effect of grain boundary energy anisotropy on highly textured grain structures studied by phase-field simulations. Acta Materialia, 2014, 64, 443-454.	3.8	44
66	In-situ observation of isothermal CaSiO ₃ crystallization in CaO-Al ₂ O ₃ -SiO ₂ melts: A study of the effects of temperature and composition. Journal of Crystal Growth, 2014, 402, 1-8.	0.7	16
67	Formation of compounds and Kirkendall vacancy in the Cu-Sn system. Microelectronic Engineering, 2014, 120, 133-137.	1.1	35
68	Phase-field simulation study of the migration of recrystallization boundaries. Physical Review B, 2013, 88, .	1.1	60
69	Evaluation of interfacial excess contributions in different phase-field models for elastically inhomogeneous systems. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 055018.	0.8	45
70	Phase field modeling of the crystallization of FeO-SiO ₂ melts in contact with an oxygen-containing atmosphere. Chemical Geology, 2011, 290, 156-162.	1.4	11
71	Bounding box framework for efficient phase field simulation of grain growth in anisotropic systems. Computational Materials Science, 2011, 50, 2221-2231.	1.4	20
72	Calculation of phase equilibria for an alloy nanoparticle in contact with a solid nanowire. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2011, 35, 173-182.	0.7	12

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73	A quantitative and thermodynamically consistent phase-field interpolation function for multi-phase systems. <i>Acta Materialia</i> , 2011, 59, 1077-1086.	3.8	195
74	A phase field model for isothermal crystallization of oxide melts. <i>Acta Materialia</i> , 2011, 59, 2156-2165.	3.8	41
75	Phase-field analysis of a ternary two-phase diffusion couple with multiple analytical solutions. <i>Acta Materialia</i> , 2011, 59, 3946-3954.	3.8	10
76	Analysis of the isothermal crystallization of CaSiO ₃ in a CaO-Al ₂ O ₃ -SiO ₂ melt through in situ observations. <i>Journal of the European Ceramic Society</i> , 2011, 31, 1873-1879.	2.8	20
77	On the rotation invariance of multi-order parameter models for grain growth. <i>Scripta Materialia</i> , 2010, 62, 827-830.	2.6	6
78	Grain growth in thin films with a fibre texture studied by phase-field simulations and mean field modelling. <i>Philosophical Magazine</i> , 2010, 90, 501-523.	0.7	21
79	Pinning effect of spheroid second-phase particles on grain growth studied by three-dimensional phase-field simulations. <i>Computational Materials Science</i> , 2010, 49, 340-350.	1.4	80
80	Comparative study of two phase-field models for grain growth. <i>Computational Materials Science</i> , 2009, 46, 479-490.	1.4	91
81	Quantitative analysis of grain boundary properties in a generalized phase field model for grain growth in anisotropic systems. <i>Physical Review B</i> , 2008, 78, .	1.1	291
82	An introduction to phase-field modeling of microstructure evolution. <i>Calphad: Computer Coupling of Phase Diagrams and Thermochemistry</i> , 2008, 32, 268-294.	0.7	717
83	Indium-assisted Growth of Si Nanowires: Perspectives on Controlled Growth for CMOS Applications. <i>Materials Research Society Symposia Proceedings</i> , 2008, 1080, 1.	0.1	0
84	Quantitative Phase-Field Approach for Simulating Grain Growth in Anisotropic Systems with Arbitrary Inclination and Misorientation Dependence. <i>Physical Review Letters</i> , 2008, 101, 025502.	2.9	113
85	Plasma-enhanced chemical vapour deposition growth of Si nanowires with low melting point metal catalysts: an effective alternative to Au-mediated growth. <i>Nanotechnology</i> , 2007, 18, 505307.	1.3	120
86	Bounding box algorithm for three-dimensional phase-field simulations of microstructural evolution in polycrystalline materials. <i>Physical Review E</i> , 2007, 76, 056702.	0.8	46
87	A Phase Field Model for grain Growth and Thermal Grooving in Thin Films with Orientation Dependent Surface Energy. <i>Solid State Phenomena</i> , 2007, 129, 89-94.	0.3	6
88	Alternative Catalysts For Si-Technology Compatible Growth Of Si Nanowires. <i>Materials Research Society Symposia Proceedings</i> , 2007, 1017, 14.	0.1	2
89	Pinning effect of second-phase particles on grain growth in polycrystalline films studied by 3-D phase field simulations. <i>Acta Materialia</i> , 2007, 55, 2173-2182.	3.8	114
90	Three-dimensional phase field simulations of grain growth in materials containing finely dispersed second-phase particles. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2007, 7, 2020001-2020002.	0.2	1

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91	Phase field simulations of grain growth in two-dimensional systems containing finely dispersed second-phase particles. <i>Acta Materialia</i> , 2006, 54, 1175-1184.	3.8	114
92	A phase field model for the simulation of grain growth in materials containing finely dispersed incoherent second-phase particles. <i>Acta Materialia</i> , 2005, 53, 1771-1781.	3.8	107
93	Thermodynamic optimization of the lead-free solder system Bi-In-Sn-Zn. <i>Journal of Alloys and Compounds</i> , 2003, 360, 98-106.	2.8	80
94	3D Phase-Field Simulation and Characterization of Microstructure Evolution during Liquid Phase Sintering. <i>Advances in Science and Technology</i> , 0, , .	0.2	3
95	Influence of 5 at.%Al-Additions on the FCC to BCC Phase Transformation in CrFeNi Concentrated Alloys. <i>Journal of Phase Equilibria and Diffusion</i> , 0, , 1.	0.5	5
96	Phase-field approach to simulate BCC-B2 phase separation in the Al ₃ CrFe ₂ Ni ₂ medium-entropy alloy. <i>Journal of Materials Science</i> , 0, , 1.	1.7	7