Charles-AndrÃ© Gandin

List of Publications by Year
in descending order

116 papers	4,355 citations	136740 32 h-index	114278 63 g-index
126 all docs	126 docs citations	126 times ranked	1597 citing authors

#	Article	IF	Citations
1	Finite Element Modeling of Powder Bed Fusion at Part Scale by a Super-Layer Deposition Method Based on Level Set and Mesh Adaptation. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2022, 144, .	1.3	3
2	Processing of directionally cast nickel-base superalloys: solidification and heat treatments. , 2022, , 193-222.		7
3	Growth competition between columnar dendritic grains â€“ The role of microstructural length scales. Acta Materialia, 2022, 223, 117395.	3.8	15
4	Structure and texture simulations in fusion welding processes â€“ comparison with experimental data. Materialia, 2022, 21, 101305.	1.3	4
5	Hybrid Cellular Automaton - Parabolic Thick Needle model for equiaxed dendritic solidification. Journal of Materials Science and Technology, 2022, 124, 26-40.	5.6	6
6	Thermodynamic coupling in the computation of dendrite growth kinetics for multicomponent alloys. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2022, 77, 102429.	0.7	8
7	Morphological stability of spherical particles - Extension of the Mullins-Sekerka criteria to multi-component alloys under a non-stationary diffusive regime. Acta Materialia, 2021, 205, 116539.	3.8	4
8	A Partitioned Solution Algorithm for Concurrent Computation of Stressâ€“Strain and Fluid Flow in Continuous Casting Process. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2021, 52, 978-995.	1.0	4
9	A simple and efficient numerical model for thermal contact resistance based on diffuse interface immersed boundary method. International Journal of Thermal Sciences, 2021, 166, 106817.	2.6	18
10	On the analytical and numerical simulation of an oscillating drop in zero-gravity. Computers and Fluids, 2020, 197, 104362.	1.3	11
11	3D cellular automaton modelling of silicon crystallization including grains in twin relationship. IOP Conference Series: Materials Science and Engineering, 2020, 861, 012052.	0.3	1
12	Three-dimensional cellular automaton modeling of silicon crystallization with grains in twin relationships. Acta Materialia, 2020, 191, 230-244.	3.8	9
13	Impact of solute flow during directional solidification of a Ni-based alloy: In-situ and real-time X-radiography. Acta Materialia, 2020, 194, 68-79.	3.8	45
14	A partitioned two-step solution algorithm for concurrent fluid flow and stressâ€“strain numerical simulation in solidification processes. Computer Methods in Applied Mechanics and Engineering, 2019, 356, 294-324.	3.4	10
15	Analysis of columnar-to-equiaxed transition experiment in lab scale steel casting by a multiphase model. IOP Conference Series: Materials Science and Engineering, 2019, 529, 012039.	0.3	4
16	Additive manufacturing of an oxide ceramic by laser beam meltingâ€”Comparison between finite element simulation and experimental results. Journal of Materials Processing Technology, 2019, 270, 106-117.	3.1	21
17	A partitioned solution algorithm for fluid flow and stress-strain computations applied to continuous casting. IOP Conference Series: Materials Science and Engineering, 2019, 529, 012082.	0.3	0
18	Level-set modelling of Laser Beam Melting process applied onto ceramic materials â€“ Comparison with experimental results. IOP Conference Series: Materials Science and Engineering, 2019, 529, 012002.	0.3	2

#	Article	IF	Citations
19	Finite diffusion microsegregation model applied to multicomponent alloys. IOP Conference Series: Materials Science and Engineering, 2019, 529, 012029.	0.3	1
20	Dendrite growth in undercooled Al-rich Al-Ni melts measured on Earth and in Space. Physical Review Materials, 2019, 3, .	0.9	6
21	Finite Element Multi-scale Modeling of Chemical Segregation in Steel Solidification Taking into Account the Transport of Equiaxed Grains. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 1725-1748.	1.1	14
22	Numerical modelling of the impact of energy distribution and Marangoni surface tension on track shape in selective laser melting of ceramic material. Additive Manufacturing, 2018, 21, 713-723.	1.7	54
23	Numerical modelling of fluid and solid thermomechanics in additive manufacturing by powder-bed fusion: Continuum and level set formulation applied to track- and part-scale simulations. Comptes Rendus - Mecanique, 2018, 346, 1055-1071.	2.1	32
24	Modeling of eutectic growth kinetics with thermodynamic couplings. Acta Materialia, 2018, 161, 110-126.	3.8	2
25	Growth competition between columnar dendritic grains â€“ Cellular automaton versus phase field modeling. Acta Materialia, 2018, 155, 286-301.	3.8	61
26	Competitive grain growth during directional solidification of a polycrystalline binary alloy: Three-dimensional large-scale phase-field study. Materialia, 2018, 1, 104-113.	1.3	57
27	Solidification of Undercooled Melts of Al-Based Alloys on Earth and in Space. Jom, 2017, 69, 1303-1310.	0.9	11
28	Three-dimensional finite element thermomechanical modeling of additive manufacturing by selective laser melting for ceramic materials. Additive Manufacturing, 2017, 16, 124-137.	1.7	62
29	An analytical model with interaction between species for growth and dissolution of precipitates. Acta Materialia, 2017, 134, 375-393.	3.8	12
30	Experimental study and two-phase numerical modeling of macrosegregation induced by solid deformation during punch pressing of solidifying steel ingots. Acta Materialia, 2017, 124, 513-527.	3.8	20
31	Three-dimensional modeling of a thermal dendrite using the phase field method with automatic anisotropic and unstructured adaptive finite element meshing. IOP Conference Series: Materials Science and Engineering, 2016, 117, 012008.	0.3	0
32	Study of Hot Tearing During Steel Solidification Through Ingot Punching Test and Its Numerical Simulation. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 4053-4067.	1.1	24
33	Finite element modeling of deposition of ceramic material during SLM additive manufacturing. MATEC Web of Conferences, 2016, 80, 08001.	0.1	6
34	Quantification of Primary Dendritic and Secondary Eutectic Nucleation Undercoolings in Rapidly Solidified Hypo-Eutectic Al-Cu Droplets. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 4606-4615.	1.1	23
35	Numerical Simulation of Solidification, Homogenization, and Precipitation in an Industrial Ni-Based Superalloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 5557-5568.	1.1	3
36	Simulation of shrinkage-induced macrosegregation in a multicomponent alloy during reduced-gravity solidification. , 2016, , 35-42.		0

#	Article	IF	Citations
37	Modeling of GP(I) zone formation during quench in an industrial AA7449 75 mm thick plate. Materials and Design, 2016, 112, 46-57.	3.3	24
38	CAFE simulation of columnar-to-equiaxed transition in Al-7wt%Si alloys directionally solidified under microgravity. IOP Conference Series: Materials Science and Engineering, 2016, 117, 012009.	0.3	1
39	Dendrite growth morphologies in rapidly solidified Al-4.5wt.%Cu droplets. IOP Conference Series: Materials Science and Engineering, 2016, 117, 012055.	0.3	3
40	Three-dimensional cellular automaton-finite element modeling of solidification grain structures for arc-welding processes. Acta Materialia, 2016, 115, 448-467.	3.8	82
41	Simulation of shrinkage-induced macrosegregation in a multicomponent alloy during reduced-gravity solidification. , 2016, , 35-42.		1
42	Modelling of Columnar-to-Equiaxed and Equiaxed-to- Columnar Transitions in Ingots Using a Multiphase Model. IOP Conference Series: Materials Science and Engineering, 2015, 84, 012087.	0.3	19
43	Multi-scale Unite element modelling of solidification structures by a splitting method taking into account the transport of equiaxed grains. IOP Conference Series: Materials Science and Engineering, 2015, 84, 012007.	0.3	2
44	Simulation of Channel Segregation During Directional Solidification of Inâ€”75ÂwtÂpctÂGa. Qualitative Comparison with In Situ Observations. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2015, 46, 4886-4897.	1.1	36
45	Temperature-based energy solver coupled with tabulated thermodynamic properties â€“ Application to the prediction of macrosegregation in multicomponent alloys. Computational Materials Science, 2015, 99, 221-231.	1.4	27
46	Analytical model for equiaxed globular solidification in multicomponent alloys. Acta Materialia, 2015, 97, 419-434.	3.8	14
47	Characterization of dendrite morphologies in rapidly solidified Alâ€“4.5 wt.%Cu droplets. Acta Materialia, 2015, 89, 234-246.	3.8	31
48	Simulation of directional solidification of refined Alâ€“7 wt.%Si alloys â€“ Comparison with benchmark microgravity experiments. Acta Materialia, 2015, 93, 24-37.	3.8	22
49	Evolution of the dendritic morphology with the solidification velocity in rapidly solidified Al-4.5wt.%Cu droplets. IOP Conference Series: Materials Science and Engineering, 2015, 84, 012016.	0.3	1
50	Numerical simulation of AM1 microstructure. MATEC Web of Conferences, 2014, 14, 11003.	0.1	2
51	Coupled Cellular Automaton (CA) â€“ Finite Element (FE) Modeling of Directional Solidification of Al-3.5 wt% Ni Alloy: A Comparison with X-ray Synchrotron Observations. ISIJ International, 2014, 54, 392-400.	0.6	12
52	CRISTAPRESS: An optical cell for structure development in high-pressure crystallization. Review of Scientific Instruments, 2014, 85, 013906.	0.6	5
53	Optimized parallel computing for cellular automatonâ€“finite element modeling of solidification grain structures. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 015012.	0.8	26
54	Spinodal Decomposition Mechanism of Î³â€² Precipitation in a Single Crystal Ni-Based Superalloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 4725-4730.	1.1	22

#	Article	IF	Citations
55	Structures in directionally solidified Alâ€“7wt.% Si alloys: Benchmark experiments under microgravity. Acta Materialia, 2014, 64, 253-265.	3.8	41
56	Atom probe tomography of secondary Î³â€² precipitation in a single crystal Ni-based superalloy after isothermal aging at 1100Â°C. Journal of Alloys and Compounds, 2014, 611, 389-394.	2.8	32
57	3D Coupled Cellular Automaton (CA)â€“Finite Element (FE) Modeling for Solidification Grain Structures in Gas Tungsten Arc Welding (GTAW). ISIJ International, 2014, 54, 401-407.	0.6	43
58	Computation of Phase Transformation Paths in Steels by a Combination of the Partial- and Para-equilibrium Thermodynamic Approximations. ISIJ International, 2014, 54, 1274-1282.	0.6	18
59	Direct Modeling of Structures and Segregations Up to Industrial Casting Scales. Jom, 2013, 65, 1122-1130.	0.9	24
60	Direct Simulation of a Solidification Benchmark Experiment. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2013, 44, 873-887.	1.1	58
61	Numerical simulation of precipitation in multicomponent Ni-base alloys. Acta Materialia, 2013, 61, 6396-6405.	3.8	45
62	Phase selection and microstructure formation in undercooled Coâ€“61.8at.% Si melts under various containerless processing conditions. Acta Materialia, 2013, 61, 4861-4873.	3.8	24
63	Influence of natural convection during upward directional solidification: A comparison between in situ X-ray radiography and direct simulation of the grain structure. Acta Materialia, 2013, 61, 4765-4777.	3.8	46
64	DÃ©veloppement d'une approche couplÃ©e Automates Cellulaires â€“ ElÃ©ments Finis pour la modÃ©lisation du dÃ©veloppement des structures de grains en soudage TIG. MATEC Web of Conferences, 2013, 7, 02002.	0.1	0
65	Prediction of Carbide Precipitation Using Partial Equilibrium Approximation in Fe^|^ndash;C^|^ndash;V^|^ndash;W^|^ndash;Cr^|^ndash;Mo High Speed Steels. ISIJ International, 2013, 53, 493-501.	0.6	12
66	Distributions of structures and solute in directionally solidified Al â€“ 7 wt % Si. IOP Conference Series: Materials Science and Engineering, 2012, 27, 012017.	0.3	6
67	Direct simulation of a directional solidification experiment observedin situand real-time using X-ray imaging. IOP Conference Series: Materials Science and Engineering, 2012, 33, 012077.	0.3	12
68	3D CAFE modeling of grain structures: application to primary dendritic and secondary eutectic solidification. Modelling and Simulation in Materials Science and Engineering, 2012, 20, 015010.	0.8	53
69	Prediction of solidification path and carbide precipitation in Fe-C-V-Cr-Mo-W high speed steels. IOP Conference Series: Materials Science and Engineering, 2012, 33, 012061.	0.3	1
70	A multiphase segregation model for multicomponent alloys with a peritectic transformation. IOP Conference Series: Materials Science and Engineering, 2012, 33, 012063.	0.3	5
71	Numerical tensile test on a mushy zone sample. IOP Conference Series: Materials Science and Engineering, 2012, 33, 012054.	0.3	5
72	Gas atomization of Alâ€“Ni powders: Solidification modeling and neutron diffraction analysis. Acta Materialia, 2011, 59, 6658-6669.	3.8	48

#	Article	IF	Citations
73	Multiple non-equilibrium phase transformations: Modeling versus electro-magnetic levitation experiment. Acta Materialia, 2011, 59, 4665-4677.	3.8	39
74	Prediction of Solidification Paths for Feâ€“Câ€“Cr Alloys by a Multiphase Segregation Model Coupled to Thermodynamic Equilibrium Calculations. ISIJ International, 2010, 50, 1859-1866.	0.6	11
75	Experimental and Numerical Modeling of Segregation in Metallic Alloys. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2010, 41, 651-669.	1.1	28
76	Modeling of solidification: Grain structures and segregations in metallic alloys. Comptes Rendus Physique, 2010, 11, 216-225.	0.3	32
77	Droplet Solidification of Impulse Atomized Al-0.61Fe and Al-1.9Fe. Canadian Metallurgical Quarterly, 2010, 49, 275-292.	0.4	20
78	Modeling of Dendritic Grain Solidification. , 2010, , 228-239.		0
79	Formation of Microstructures, Grain Textures, and Defects during Solidification. , 2010, , 214-227.		0
80	A Solidification Model for Atomization. ISIJ International, 2009, 49, 992-999.	0.6	32
81	Numerical modelling of columnar to equiaxed transition â€“ application to microgravity experiments. International Journal of Cast Metals Research, 2009, 22, 34-38.	0.5	8
82	A Comparison of Columnar-to-Equiaxed Transition Prediction Methods Using Simulation of the Growing Columnar Front. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2009, 40, 662-672.	1.1	45
83	A generalized segregation model for concurrent dendritic, peritectic and eutectic solidification. Acta Materialia, 2009, 57, 2066-2079.	3.8	58
84	Modeling of Microstructure Evolution during Solidification Processing. , 2009, , 312-321.		1
85	Nonâ€Equilibrium and Nearâ€Equilibrium Solidification of Undercooled Melts of Niâ€•and Alâ€based Alloys. Advanced Engineering Materials, 2008, 10, 444-452.	1.6	11
86	Experimental and numerical modeling of equiaxed solidification in metallic alloys. Acta Materialia, 2008, 56, 3023-3035.	3.8	70
87	Materials solidification physics in space. Europhysics News, 2008, 39, 22-24.	0.1	2
88	Direct Modeling of Structure Formation. , 2008, , 435-444.		3
89	Modeling of precipitate-free zone formed upon homogenization in a multi-component alloy. Acta Materialia, 2007, 55, 2539-2553.	3.8	49
90	Interaction between single grain solidification and macrosegregation: Application of a cellular automatonâ€”Finite element model. Journal of Crystal Growth, 2007, 303, 58-68.	0.7	62

#	Article	IF	Citations
91	Columnar-to-Equiaxed Transition in SOLidification Processing (CETSOL): A Project of the European Space Agency (ESA) - Microgravity Applications Promotion (MAP) Programme. Materials Science Forum, 2006, 508, 393-404.	0.3	6
92	Segregation with Spongy Deformation of the Mushy Zone during Solidification of the Skin of Steel Cast Products. Materials Science Forum, 2006, 508, 175-180.	0.3	2
93	Modeling of Macrosegregation and Solidification Grain Structures with a Coupled Cellular Automaton-Finite Element Model. ISIJ International, 2006, 46, 880-895.	0.6	63
94	Atomized droplet solidification as an equiaxed growth model. Acta Materialia, 2006, 54, 4427-4440.	3.8	43
95	Columnar-EquiaxedTransition inSolidification processing: The ESA-MAP CETSOL project. Microgravity Science and Technology, 2005, 16, 20-25.	0.7	4
96	Modeling of Dendritic Grain Formation during Solidification at the Level of Macro- and Microstructures. , 2005, , 249-269.		1
97	A new cellular automatonâ€"finite element coupling scheme for alloy solidification. Modelling and Simulation in Materials Science and Engineering, 2004, 12, 545-556.	0.8	41
98	Boundary layer correlation for dendrite tip growth with fluid flow. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2003, 342, 44-50.	2.6	56
99	Segregation during solidification with spongy deformation of the mushy zone. Acta Materialia, 2003, 51, 5263-5283.	3.8	32
100	Modeling of Precipitation Coupled with Thermodynamic Calculations. Materials Science Forum, 2002, 396-402, 747-752.	0.3	6
101	Modelling of solidification and heat treatment for the prediction of yield stress of cast alloys. Acta Materialia, 2002, 50, 901-927.	3.8	31
102	Stochastic Modeling of Dendritic Grain Structures. Advanced Engineering Materials, 2001, 3, 303-306.	1.6	6
103	Stochastic modelling of dendritic grain structures. Revue De Metallurgie, 2001, 98, 1073-1077.	0.3	0
104	From constrained to unconstrained growth during directional solidification. Acta Materialia, 2000, 48, 2483-2501.	3.8	166
105	EBSD characterisation and modelling of columnar dendritic grains growing in the presence of fluid flow. Acta Materialia, 2000, 48, 675-688.	3.8	70
106	Experimental Study of the Transition from Constrained to Unconstrained Growth during Directional Solidification.. ISIJ International, 2000, 40, 971-979.	0.6	64
107	A 3D Cellular Automaton algorithm for the prediction of dendritic grain growth. Acta Materialia, 1997, 45, 2187-2195.	3.8	319
108	Prediction of a process window for the investment casting of dendritic single crystals. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1997, 237, 35-42.	2.6	78

#	Article	IF	Citations
109	Analytical and numerical predictions of dendritic grain envelopes. Acta Materialia, 1996, 44, 3339-3347.	3.8	57
110	Process modelling and microstructure. , 1996, , 145-159.		0
111	Stochastic Modelling of Solidification Grain Structures.. ISIJ International, 1995, 35, 651-657.	0.6	20
112	Stochastic Modeling of Grain Structure Formation in Solidification Processes. MRS Bulletin, 1994, 19, 20-24.	1.7	8
113	A coupled finite element-cellular automaton model for the prediction of dendritic grain structures in solidification processes. Acta Metallurgica Et Materialia, 1994, 42, 2233-2246.	1.9	592
114	Probabilistic modelling of microstructure formation in solidification processes. Acta Metallurgica Et Materialia, 1993, 41, 345-360.	1.9	831
115	Modeling of Heat and Solute Interactions upon Grain Structure Solidification. Materials Science Forum, 0, 649, 189-198.	0.3	9
116	CAFE Modeling of Segregation and Structure in Levitated Droplets. Materials Science Forum, 0, 649, 237-242.	0.3	3