Laszlo Granasy

List of Publications by Year in Descending Order

145 papers	4,974 citations	40 h-index	64 g-index
150 ext. papers	5,399 ext. citations	5.3 avg, IF	5.49 L-index

#	Paper	IF	Citations
145	Phase-field modelling of directional melting of lamellar and rod eutectic structures. *Acta Materialia*, **2022**, 227, 117678	8.4	1
144	Nucleation and Post-Nucleation Growth in Diffusion-Controlled and Hydrodynamic Theory of Solidification. *Crystals*, **2021**, 11, 437	2.3	0
143	Phase-Field Modeling of Biomineralization in Mollusks and Corals: Microstructure vs Formation Mechanism. *Jacs Au*, **2021**, 1, 1014-1033		4
142	Phase field benchmark problems for nucleation. *Computational Materials Science*, **2021**, 193, 110371	3.2	4
141	Crystal nucleation and growth of spherulites demonstrated by coral skeletons and phase-field simulations. *Acta Biomaterialia*, **2021**, 120, 277-292	10.8	12
140	Ultrafine Fe-Fe2Ti eutectics by directed energy deposition: Insights into microstructure formation based on experimental techniques and phase field modelling. *Additive Manufacturing*, **2020**, 33, 101133	6.1	1
139	Orientational order in dense suspensions of elliptical particles in the non-Stokesian regime. *Soft Matter*, **2020**, 16, 8925-8932	3.6	0
138	Crystal growth kinetics as an architectural constraint on the evolution of molluscan shells. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 20388-20397	11.5	24
137	Phase-field modeling of crystal nucleation in undercooled liquids A review. *Progress in Materials Science*, **2019**, 106, 100569	42.2	39
136	Phase Field Modelling of Reaction Between Methane Hydrate and Fluid Carbon Dioxide **2019**, 169-172		
135	Phase-field lattice Boltzmann model for dendrites growing and moving in melt flow. *Npj Computational Materials*, **2019**, 5,	10.9	16
134	Biomineralization as a Paradigm of Directional Solidification: A Physical Model for Molluscan Shell Ultrastructural Morphogenesis. *Advanced Materials*, **2018**, 30, e1803855	24	22
133	Orientation-field models for polycrystalline solidification: Grain coarsening and complex growth forms. *Journal of Crystal Growth*, **2017**, 457, 32-37	1.6	14
132	Phase-field modeling of eutectic structures on the nanoscale: the effect of anisotropy. *Journal of Materials Science*, **2017**, 52, 5544-5558	4.3	17
131	Hydrodynamic theory of freezing: Nucleation and polycrystalline growth. *Physical Review E*, **2017**, 95, 052801	2.4	9
130	Topological defects in two-dimensional orientation-field models for grain growth. *Physical Review E* , **2017**, 96, 052802	2.4	5
129	Grain coarsening in two-dimensional phase-field models with an orientation field. *Physical Review E*, **2017**, 95, 053303	2.4	14

128	Phase-field crystal modeling of heteroepitaxy and exotic modes of crystal nucleation. *Journal of Crystal Growth*, **2017**, 457, 24-31	1.6	15
127	Microstructure Modeling **2016**, 269-323		
126	Recent Developments in Modeling Heteroepitaxy/Heterogeneous Nucleation by Dynamical Density Functional Theory. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2015**, 46, 4908-4920	2.3	14
125	Ternary eutectic dendrites: Pattern formation and scaling properties. *Journal of Chemical Physics*, **2015**, 142, 154501	3.9	24
124	Growth control of peptide-nanotube spherulitic films: Experiments and simulations. *Nano Research*, **2015**, 8, 3630-3638	10	5
123	Consistent multiphase-field theory for interface driven multidomain dynamics. *Physical Review B*, **2015**, 92,	3.3	39
122	Phase-Field Modeling of Polycrystalline Solidification: From Needle Crystals to Spherulites—A Review. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2014**, 45, 1694-1719	2.3	56
121	Heterogeneous nucleation of/on nanoparticles: a density functional study using the phase-field crystal model. *Chemical Society Reviews*, **2014**, 43, 2159-73	58.5	34
120	Free energy of the bcc□quid interface and the Wulff shape as predicted by the phase-field crystal model. *Journal of Crystal Growth*, **2014**, 385, 148-153	1.6	15
119	Phase-Field Modeling of Solidification in Light-Metal Matrix Nanocomposites **2014**, 455-459		2
118	Nonlinear hydrodynamic theory of crystallization. *Journal of Physics Condensed Matter*, **2014**, 26, 055001	1.8	13
117	Phase-Field Modeling of Solidification in Light-Metal Matrix Nanocomposites **2014**, 455-459		
116	Spiraling eutectic dendrites. *Physical Review E*, **2013**, 87,	2.4	19
115	Encyclopedia of Polymers and Composites **2013**, 1-35		5
114	Phase-field-crystal models for condensed matter dynamics on atomic length and diffusive time scales: an overview. *Advances in Physics*, **2012**, 61, 665-743	18.4	248
113	Heterogeneous crystal nucleation: the effect of lattice mismatch. *Physical Review Letters*, **2012**, 108, 025502	7.4	65
112	Amorphous nucleation precursor in highly nonequilibrium fluids. *Physical Review Letters*, **2011**, 107, 175702	7.4	70
111	Faceting and branching in 2D crystal growth. *Physical Review Letters*, **2011**, 106, 195502	7.4	56

110	Selected issues of phase-field crystal simulations. *European Physical Journal Plus*, **2011**, 126, 1	3.1	9
109	Tuning the structure of non-equilibrium soft materials by varying the thermodynamic driving force for crystal ordering. *Soft Matter*, **2011**, 7, 1789-1799	3.6	51
108	Ginzburg-Landau-type multiphase field model for competing fcc and bcc nucleation. *Physical Review Letters*, **2011**, 106, 045701	7.4	25
107	Phase-field crystal modelling of crystal nucleation, heteroepitaxy and patterning. *Philosophical Magazine*, **2011**, 91, 123-149	1.6	50
106	Polymorphism, crystal nucleation and growth in the phase-field crystal model in 2D and 3D. *Journal of Physics Condensed Matter*, **2010**, 22, 364101	1.8	68
105	Classical density functional theory methods in soft and hard matter. *Journal of Physics Condensed Matter*, **2010**, 22, 360301	1.8	12
104	Phase field approach to heterogeneous crystal nucleation in alloys. *Physical Review B*, **2009**, 79,	3.3	70
103	Shear enhanced heterogeneous nucleation in some Mg- and Al-alloys. *International Journal of Cast Metals Research*, **2009**, 22, 318-322	1	41
102	Advanced operator splitting-based semi-implicit spectral method to solve the binary phase-field crystal equations with variable coefficients. *Journal of Computational Physics*, **2009**, 228, 1612-1623	4.1	83
101	Crystal nucleation in the hard-sphere system revisited: a critical test of theoretical approaches. *Journal of Physical Chemistry B*, **2009**, 113, 5141-8	3.4	9
100	Diffusion-controlled anisotropic growth of stable and metastable crystal polymorphs in the phase-field crystal model. *Physical Review Letters*, **2009**, 103, 035702	7.4	85
99	Phase-field approach to polycrystalline solidification including heterogeneous and homogeneous nucleation. *Journal of Physics Condensed Matter*, **2008**, 20, 404205	1.8	40
98	Phase field modeling of CH4 hydrate conversion into CO2 hydrate in the presence of liquid CO2. *Physical Chemistry Chemical Physics*, **2007**, 9, 3104-11	3.6	27
97	Phase field theory of interfaces and crystal nucleation in a eutectic system of fcc structure: II. Nucleation in the metastable liquid immiscibility region. *Journal of Chemical Physics*, **2007**, 127, 074710	3.9	16
96	Phase field theory of heterogeneous crystal nucleation. *Physical Review Letters*, **2007**, 98, 035703	7.4	120
95	Phase field theory of interfaces and crystal nucleation in a eutectic system of fcc structure: I. Transitions in the one-phase liquid region. *Journal of Chemical Physics*, **2007**, 127, 074709	3.9	13
94	Multiscale approach to CO2 hydrate formation in aqueous solution: phase field theory and molecular dynamics. Nucleation and growth. *Journal of Chemical Physics*, **2006**, 124, 234710	3.9	54
93	Polycrystalline patterns in far-from-equilibrium freezing: a phase field study. *Philosophical Magazine*, **2006**, 86, 3757-3778	1.6	21

92	Phase field theory of crystal nucleation and polycrystalline growth: A review. *Journal of Materials Research*, **2006**, 21, 309-319	2.5	64
91	The phase-field theory applied to CO2 and CH4 hydrate. *Journal of Crystal Growth*, **2006**, 287, 486-490	1.6	39
90	Growth and form of spherulites. *Physical Review E*, **2005**, 72, 011605	2.4	331
89	Phase field simulation of liquid phase separation with fluid flow. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 413-414, 418-422	5.3	51
88	Phase field modeling of polycrystalline freezing. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 413-414, 412-417	5.3	16
87	The influence of diffusion on hydrate growth. *Journal of Phase Equilibria and Diffusion*, **2005**, 26, 534-538	1	8
86	Phase field theory of polycrystalline solidification in three dimensions. *Europhysics Letters*, **2005**, 71, 131-137	1.6	56
85	Nucleation and the Solid–Liquid Interfacial Free Energy. *MRS Bulletin*, **2004**, 29, 945-950	3.2	41
84	A general mechanism of polycrystalline growth. *Nature Materials*, **2004**, 3, 645-50	27	284
83	Phase-field models for eutectic solidification. *Jom*, **2004**, 56, 34-39	2.1	26
82	Multiphase solidification in multicomponent alloys. *Materials Science and Engineering Reports*, **2004**, 46, 1-49	30.9	134
81	Kinetics of solid hydrate formation by carbon dioxide: Phase field theory of hydrate nucleation and magnetic resonance imaging. *Physical Chemistry Chemical Physics*, **2004**, 6, 2327-2334	3.6	60
80	Modelling polycrystalline solidification using phase field theory. *Journal of Physics Condensed Matter*, **2004**, 16, R1205-R1235	1.8	97
79	Growth of 'dizzy dendrites' in a random field of foreign particles. *Nature Materials*, **2003**, 2, 92-6	27	116
78	Phase field theory of crystal nucleation in hard sphere liquid. *Journal of Chemical Physics*, **2003**, 119, 10376-10382	3.6	54
77	Phase-field Theory of Nucleation and Growth in Binary Alloys. *Lecture Notes in Computational Science and Engineering*, **2003**, 190-195	0.3	6
76	Crystal growth and classical nucleation theory. *Comptes Rendus Chimie*, **2002**, 5, 765-771	2.7	26
75	Crystal nucleation and growth in binary phase-field theory. *Journal of Crystal Growth*, **2002**, 237-239, 1813-1817	1.6	37

74	Interfacial properties deduced from nucleation experiments: A CahnHilliard analysis. *Journal of Chemical Physics*, **2002**, 117, 6157-6168	3.9	61
73	Nucleation and bulk crystallization in binary phase field theory. *Physical Review Letters*, **2002**, 88, 206105	7.4	152
72	Diffuse interface analysis of crystal nucleation in hard-sphere liquid. *Journal of Chemical Physics*, **2002**, 117, 10121-10124	3.9	39
71	CahnHilliard theory with triple-parabolic free energy. II. Nucleation and growth in the presence of a metastable crystalline phase. *Journal of Chemical Physics*, **2000**, 112, 2410-2419	3.9	36
70	CahnHilliard theory with triple-parabolic free energy. I. Nucleation and growth of a stable crystalline phase. *Journal of Chemical Physics*, **2000**, 112, 2399-2409	3.9	26
69	Regular dendritic patterns induced by nonlocal time-periodic forcing. *Physical Review E*, **2000**, 62, 7817-27	2.4	25
68	Analytical density functional theory of homogeneous vapor condensation. *Physical Review E*, **2000**, 62, 7486-9	2.4	12
67	Nucleation and growth in cluster dynamics: A quantitative test of the classical kinetic approach. *Journal of Chemical Physics*, **2000**, 113, 9810-9821	3.9	47
66	Dendrites Regularized by Spatially Homogeneous Time-Periodic Forcing. *Physical Review Letters*, **1999**, 83, 2853-2856	7.4	38
65	Transient nucleation in oxide glasses: The effect of interface dynamics and subcritical cluster population. *Journal of Chemical Physics*, **1999**, 111, 737-749	3.9	15
64	Bulk structure of phototransformed C. *Solid State Communications*, **1999**, 111, 595-599	1.6	32
63	CahnHilliard-type density functional calculations for homogeneous ice nucleation in undercooled water. *Journal of Molecular Structure*, **1999**, 485-486, 523-536	3.4	19
62	Non-classical theory of crystal nucleation: application to oxide glasses: review. *Journal of Non-Crystalline Solids*, **1999**, 253, 210-230	3.9	23
61	Semiempirical van der Waals/CahnHilliard theory: Size dependence of the Tolman length. *Journal of Chemical Physics*, **1998**, 109, 9660-9663	3.9	45
60	Nucleation in oxide glasses: comparison of theory and experiment. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **1998**, 454, 1745-1766	2.4	19
59	Monte Carlo simulation of first-order phase transformations with mutual blocking of anisotropically growing particles up to all relevant orders. *Physical Review B*, **1998**, 57, 14110-14118	3.3	40
58	Polymer-monomer phase transition in Na4C60. *Physical Review B*, **1998**, 58, 5-7	3.3	28
57	Kinetics of wollastonite nucleation in CaO?SiO2 glass. *Journal of Chemical Physics*, **1998**, 108, 7317-7326	3.9	29

56	Nucleation and Spinodal Decomposition. *Solid State Phenomena*, **1997**, 56, 67-106	0.4	9
55	Thermodynamics of A 1 C60 (A = K, Rb, Cs) Alkali Fulleredes. *Fullerenes, Nanotubes, and Carbon Nanostructures*, **1997**, 5, 325-342		1
54	Comparison of experiments and modern theories of crystal nucleation. *Journal of Chemical Physics*, **1997**, 107, 3634-3644	3.9	66
53	Diffuse interface model of crystal nucleation. *Journal of Non-Crystalline Solids*, **1997**, 219, 49-56	3.9	29
52	Molecular and crystal structure of the AC60 (A = K, Rb) dimer phase. *Journal of Physics and Chemistry of Solids*, **1997**, 58, 1893-1896	3.9	11
51	Diffuse interface theory for homogeneous vapor condensation. *Journal of Chemical Physics*, **1996**, 104, 5188-5198	3.9	64
50	Enthalpies of phase transformations in the alkali fulleride RbC60. *Solid State Communications*, **1996**, 97, 573-578	1.6	18
49	Diffuse interface model of volume nucleation in glasses. *Thermochimica Acta*, **1996**, 280-281, 83-100	2.9	5
48	Diffuse interface model of nucleation. *Journal of Crystal Growth*, **1996**, 167, 756-765	1.6	15
47	Single C-C bond in (C60)22-. *Physical Review B*, **1996**, 54, 11849-11852	3.3	107
46	Phase selection and transformation kinetics in KC60. *Physical Review B*, **1996**, 54, 11865-11868	3.3	1
45	Thermodynamics of polymorphism in the AC60 (A=K, Rb, Cs) alkali fullerides. *Physical Review B*, **1996**, 53, 5059-5062	3.3	22
44	Fundamentals of the Diffuse Interface Theory of Nucleation. *The Journal of Physical Chemistry*, **1996**, 100, 10768-10770		30
43	Distribution of K ions in intermediate KC60. *Physical Review B*, **1995**, 52, 3199-3205	3.3	22
42	Dimerization in KC60 and RbC60. *Physical Review B*, **1995**, 51, 12228-12232	3.3	100
41	Infrared and differential-scanning-calorimetry study of the room-temperature cubic phase of RbC60. *Physical Review B*, **1995**, 52, 11488-11491	3.3	12
40	Phase Transitions in the A 1 C 60 (A = K, Rb, Cs) Salts. *Europhysics Letters*, **1995**, 32, 721-727	1.6	20
39	Diffuse Interface Analysis of Ice Nucleation in Undercooled Water. *The Journal of Physical Chemistry* , **1995**, 99, 14182-14187		27

38	Anomalous nucleation prefactors revisited: a diffuse interface analysis of crystal nucleation in oxide glasses. *Scripta Metallurgica Et Materialia*, **1995**, 32, 1611-1617		8
37	Diffuse interface approach to crystal nucleation in glasses. *Journal of Non-Crystalline Solids*, **1995**, 192-193, 470-473	3.9	11
36	Nucleation theory for diffuse interfaces. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1994**, 178, 121-124	5.3	24
35	Cluster spin-glass model for amorphous Fe-Zr alloys near the critical concentration: a magnetization study. *Journal of Magnetism and Magnetic Materials*, **1994**, 135, 161-170	2.8	34
34	Temperature dependence of the iron hyperfine field distribution in amorphous Fe-rich Fe-Zr alloys. *Hyperfine Interactions*, **1994**, 94, 1861-1865	0.8	2
33	Diffuse interface model of bulk heterogeneous nucleation. *Scripta Metallurgica Et Materialia*, **1994**, 31, 601-606		15
32	On the diffuse interface theory of nucleation. *Scripta Metallurgica Et Materialia*, **1994**, 30, 621-626		9
31	Quantitative analysis of the classical nucleation theory on glass-forming alloys. *Journal of Non-Crystalline Solids*, **1993**, 156-158, 514-518	3.9	8
30	Diffuse interface theory of nucleation. *Journal of Non-Crystalline Solids*, **1993**, 162, 301-303	3.9	89
29	Homogeneous nucleation within the liquid miscibility gap of Zn-Pb alloys. *Scripta Metallurgica Et Materialia*, **1993**, 28, 1329-1334		43
28	Nucleation controlled transformation in ball milled FeB. *Scripta Materialia*, **1993**, 2, 11-18		22
27	Diffuse Interface Approach to Vapour Condensation. *Europhysics Letters*, **1993**, 24, 121-126	1.6	44
26	Magnetic cluster relaxation in amorphous Fe-Zr alloys. *Physical Review B*, **1992**, 46, 6600-6602	3.3	20
25	Structure and stability of crystalline C60 n-pentane clathrate. *Solid State Communications*, **1992**, 83, 423-426	1.6	57
24	Solid-liquid interfacial free energy. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1991**, 133, 577-580	5.3	51
23	Modelling of dendritic growth during ribbon formation in planar flow casting. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1991**, 133, 722-725	5.3	5
22	Heat transfer in the single roller quenching methods. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1991**, 133, 751-754	5.3	1
21	Simulation of the Dendritic Solidification during Single Roller Quenching. *Materials Science Forum*, **1991**, 77, 211-218	0.4	

20	A simplified treatment of transient nucleation in case of rapid quenching. *Journal of Non-Crystalline Solids*, **1991**, 136, 266-268	3.9	2
19	Modelling of crystal growth during the ribbon formation in planar flow casting. *Steel Research = Archiv F□ Das Eisenh□ttenwesen*, **1990**, 61, 467-471		2
18	CEMS investigation of laser melted Fe□r alloys. *Hyperfine Interactions*, **1990**, 59, 481-484	0.8	2
17	CEMS investigation of near surface structure. *Hyperfine Interactions*, **1990**, 57, 1823-1827	0.8	1
16	Mechanism of ribbon formation in single-roller quenching. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1990**, 123, L5-L8	5.3	
15	Laser melted Fe?B alloys. *Journal of Non-Crystalline Solids*, **1990**, 117-118, 160-163	3.9	
14	Local structure of amorphous (Ni,Fe. *Journal of Non-Crystalline Solids*, **1990**, 117-118, 168-171	3.9	2
13	Laser-melted amorphous and crystalline Fe-B alloys. *Physical Review B*, **1990**, 42, 548-554	3.3	8
12	Models for continuous casting of metallic glass ribbons II: The effect of the melt pool on the cross-sectional homogeneity. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1989**, 111, 129-144	5.3	10
11	Correlation between the atomic and electronic structure of metallic glasses. *Hyperfine Interactions*, **1986**, 27, 381-384	0.8	3
10	Analysis of the Ribbon Formation Process on the Single Roller Rapid Solidification Technique. *Transactions of the Japan Institute of Metals*, **1986**, 27, 51-60		16
9	Models for continuous casting of metallic glass ribbons I: The applicability of the infinite-viscosity assumption to thermal history calculations. *Materials Science and Engineering*, **1985**, 72, 71-83		11
8	The evaluation of kinetic parameters from non-isothermal experiments: Application to crystallization kinetics. *Journal of Non-Crystalline Solids*, **1984**, 68, 193-202	3.9	54
7	Investigation of the thermal relaxation in glassy Ni 80□ Fe x P 20 alloys. *Journal of Non-Crystalline Solids*, **1984**, 61-62, 907-912	3.9	6
6	The influence of technological conditions on the Curie point relaxation of Fe25Ni55B10Si10 metallic glasses. *Journal of Magnetism and Magnetic Materials*, **1984**, 41, 113-115	2.8	8
5	Crystallization and local order of bulk AsxTe1□ glasses. *Journal of Non-Crystalline Solids*, **1983**, 57, 411-423	3.9	18
4	Crystallization of glassy Fe84B16□Cx (x=0 to 10) alloys. *Physical Review B*, **1982**, 25, 127-135	3.3	16
3	Investigation of magnetic properties and thermal stability of Fe-TM-B metallic glasses. *Journal of Magnetism and Magnetic Materials*, **1982**, 26, 109-111	2.8	18

2	The non-existence of a general correction term in continuous heating experiments. *Thermochimica Acta*, **1980**, 42, 289-294	2.9	14
1	Phase-Field Crystal Modeling of Homogeneous and Heterogeneous Crystal Nucleation113-138		1