

# Andriy M Gusak

## List of Publications by Year in descending order

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119  
papers

2,314  
citations

304743

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143  
all docs

143  
docs citations

143  
times ranked

1281  
citing authors

#	ARTICLE	IF	CITATIONS
1	Alternative algorithms for simultaneous modeling of ordering and intermediate compound growth during reactive diffusion. Computational Materials Science, 2021, 187, 110114.	3.0	2
2	A kinetic model of copper-to-copper direct bonding under thermal compression. Journal of Materials Research and Technology, 2021, 15, 2332-2344.	5.8	33
3	The effect of introducing stochasticity to kinetic mean-field calculations: Comparison with lattice kinetic Monte Carlo in case of regular solid solutions. Computational Materials Science, 2020, 171, 109251.	3.0	8
4	Anisotropic Nucleation, Growth and Ripening under Stirring – A Phenomenological Model. Entropy, 2020, 22, 1254.	2.2	1
5	Elementary models of the flux driven anti-ripening during nanobelt growth. Physical Chemistry Chemical Physics, 2020, 22, 9740-9748.	2.8	1
6	“Predator and Prey” Model Revisited – Influence of External Fluxes and Noise. Journal of Mathematical Sciences, 2020, 246, 648-663.	0.4	0
7	Ultra-thin intermetallic compound formation in microbump technology by the control of a low Zn concentration in solder. Materialia, 2020, 12, 100791.	2.7	5
8	Incubation Time at Decomposition of Solid Solution – Stochastic Kinetic Mean-Field Versus Monte Carlo Simulation. Ukrainian Journal of Physics, 2020, 65, 488.	0.2	0
9	The Competition of Intermediate Phases in the Diffusion Zone. Inorganic Materials: Applied Research, 2019, 10, 517-524.	0.5	4
10	Phase competition in solid-state reactive diffusion revisited – Stochastic kinetic mean-field approach. Journal of Chemical Physics, 2019, 150, 174109.	3.0	14
11	MODELING OF THE KINETICS OF THE ALLOYS DECOMPOSITION AND HOMOGENIZATION BY THE MEAN-FIELD METHOD. Вісник Черкаського Університету Серія Фізико-математичні Науки, 2019, , 120-136.	0.0	0
12	NUCLEATION AND COMPETITION OF COMPOUNDS IN STRONGLY INHOMOGENEOUS OPEN SYSTEMS – NEW DEVELOPMENTS. Вісник Черкаського Університету Серія Фізико-математичні Науки, 2019, , 9-30.	0.0	1
13	ELEMENTARY MODEL OF DIRECT BONDING AT LOW TEMPERATURE. Вісник Черкаського Університету Серія Фізико-математичні Науки, 2019, , 51-59.	0.0	0
14	NUCLEATION IN METASTABLE SOLID SOLUTION – STOCHASTIC KINETIC MEAN FIELD APPROACH VERSUS CLASSICAL NUCLEATION THEORY. Вісник Черкаського Університету Серія Фізико-математичні Науки, 2019, , 60-67.	0.0	0
15	MODELING OF CONCENTRATION AND TEMPERATURE DEPENDENCIES OF INCUBATION TIME AT DECOMPOSITION OF SOLID SOLUTION BY MONTE CARLO METHOD. Вісник Черкаського Університету Серія Фізико-математичні Науки, 2019, , 3-11.	0.0	0
16	"Predator and prey" model revisited - influence of external fluxes and noise. Ukrainian Mathematical Bulletin, 2019, 16, 536-556.	0.5	0
17	A comparison between complete and incomplete cellular precipitations. Scripta Materialia, 2018, 146, 133-135.	5.2	6
18	Martin’s Kinetic Mean-Field Model Revisited – Frequency Noise Approach versus Monte Carlo. Metallofizika i Noveishie Tekhnologii, 2018, 40, 1415-1435.	0.5	9

#	ARTICLE	IF	CITATIONS
19	Kinetic pinning versus capillary pinning of voids at the moving interface during reactive diffusion. Philosophical Magazine Letters, 2017, 97, 1-10.	1.2	7
20	Diffusion-Controlled Phase Transformations in Open Systems. , 2017, , 37-100.		2
21	Simulation of the Tracer Diffusion, Bulk Ordering, and Surface Reordering in F.C.C. Structures by Kinetic Mean-Field Method. Progress in Physics of Metals, 2017, 18, 205-233.	1.5	12
22	Modeling of Entropy Production and Self-Organization of Decomposing Metallic Alloy Under high Current Density. Ukrainian Journal of Physics, 2017, 62, 1031-1040.	0.2	2
23	Stochastic kinetic mean field model. Computer Physics Communications, 2016, 204, 31-37.	7.5	28
24	Flux-driven cellular precipitation in open system to form porous Cu <sub>3</sub> Sn. Philosophical Magazine, 2016, 96, 1318-1331.	1.6	17
25	Model of diffusive interaction between two-phase alloys with explicit fine-tuning of the morphology evolution. Acta Materialia, 2016, 108, 68-84.	7.9	6
26	Ambient dissolutionâ€œrecrystallization towards large-scale preparation of V <sub>2</sub> O <sub>5</sub> nanobelts for high-energy battery applications. Nano Energy, 2016, 22, 583-593.	16.0	112
27	Pseudopartial wetting of WC/WC grain boundaries in cemented carbides. Materials Letters, 2015, 147, 105-108.	2.6	51
28	Criteria of kinetic suppression of lateral growth of intermediate phases. Philosophical Magazine Letters, 2015, 95, 110-121.	1.2	7
29	Pseudopartial wetting of grain boundaries in severely deformed Al-Zn alloys. Russian Journal of Non-Ferrous Metals, 2015, 56, 44-51.	0.6	42
30	Electromigration revisited: competition between Kirkendall shift and backstress in pure metals and two-phase alloys. Philosophical Magazine, 2015, 95, 1093-1104.	1.6	0
31	Spectrum of heterogeneous nucleation modes in crystallization of Sn-0.7wt%Cu solder: experimental results versus theoretical model calculations. Journal of Materials Science: Materials in Electronics, 2015, 26, 8464-8477.	2.2	3
32	Phase growth competition in solid/liquid reactions between copper or Cu <sub>3</sub> Sn compound and liquid tin-based solder. Journal of Materials Science: Materials in Electronics, 2014, 25, 4664-4672.	2.2	15
33	Dynamical Imaging of Nickel Disilicide Nucleation and Step Flow Propagation in Defect-Engineered Si Nanowire. ECS Transactions, 2014, 64, 101-108.	0.5	0
34	Elementary model of severe plastic deformation by KoBo process. Journal of Applied Physics, 2014, 115, .	2.5	15
35	Competition between Kirkendall shift and backstress in interdiffusion revisited â€œ simple analytic model. Philosophical Magazine, 2014, 94, 1153-1165.	1.6	4
36	Cu <sub>3</sub> Sn suppression criterion for solid copper/molten tin reaction. Philosophical Magazine Letters, 2014, 94, 217-224.	1.2	11

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37	Growth kinetics of nanoshells of the intermediate phase with allowance for finite reaction rates at interphase boundaries. <i>Physics of Metals and Metallography</i> , 2014, 115, 268-276.	1.0	0
38	Inverse problem for SHS in multilayer nanofolds: Prediction of process parameters for single-stage SHS reaction. <i>International Journal of Self-Propagating High-Temperature Synthesis</i> , 2013, 22, 222-231.	0.5	8
39	Possibility of a shape phase transition for solidification of tin at scallop-like surfaces of $Cu_6Sn_5$ . <i>Philosophical Magazine Letters</i> , 2013, 93, 166-173.	1.2	2
40	Interrelation of depletion and segregation in decomposition of nanoparticles. <i>Philosophical Magazine</i> , 2013, 93, 1677-1689.	1.6	6
41	Mean-field and quasi-phase-field models of nucleation and phase competition in reactive diffusion. <i>Philosophical Magazine</i> , 2013, 93, 1999-2012.	1.6	23
42	Model of phase separation and of morphology evolution in two-phase alloy. <i>Philosophical Magazine</i> , 2013, 93, 2013-2025.	1.6	4
43	Contribution of tilt boundaries to the total energy spectrum of grain boundaries in polycrystals. <i>JETP Letters</i> , 2013, 96, 582-587.	1.4	7
44	Competition of K and F sinks during void formation. <i>Physics of Metals and Metallography</i> , 2013, 114, 197-206.	1.0	20
45	Nucleation and Atomic Layer Reaction in Nickel Silicide for Defect-Engineered Si Nanochannels. <i>Nano Letters</i> , 2013, 13, 2748-2753.	9.1	28
46	Pore Evolution at Reactive Diffusion in Spherical and Cylindrical Nanoparticles. <i>Ukrainian Journal of Physics</i> , 2013, 58, 171-181.	0.2	1
47	Effective Temperature of High Pressure Torsion in Zr-Nb Alloys. <i>High Temperature Materials and Processes</i> , 2012, 31, .	1.4	20
48	A new physical model for life time prediction of Pb-free solder joints in electromigration tests. , 2012, , .		3
49	Wetting of grain boundaries in hard-magnetic Nd-Fe-B alloys. <i>Russian Journal of Non-Ferrous Metals</i> , 2012, 53, 450-456.	0.6	16
50	Chemical interdiffusion in binary systems; interface barriers and phase competition. <i>Journal of Applied Physics</i> , 2011, 110, 123705.	2.5	20
51	Thermodynamics of void nucleation in nanoparticles. <i>Philosophical Magazine Letters</i> , 2011, 91, 741-750.	1.2	7
52	Flux-driven nucleation at interfaces during reactive diffusion. <i>Philosophical Magazine Letters</i> , 2011, 91, 610-620.	1.2	20
53	Diffusion in Point Contact Reaction. <i>Defect and Diffusion Forum</i> , 2011, 309-310, 143-148.	0.4	0
54	Models of Interdiffusion in a Polycrystalline Alloy: Kirkendall Effect versus Non-Equilibrium Vacancies and Backstress. <i>Defect and Diffusion Forum</i> , 2011, 309-310, 135-142.	0.4	3

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55	Theory of Repeating Nucleation in Point Contact Reactions between Nanowires. Nano Letters, 2010, 10, 4799-4806.	9.1	9
56	Interaction between the Kirkendall effect and the inverse Kirkendall effect in nanoscale particles. Acta Materialia, 2009, 57, 3367-3373.	7.9	57
57	Hollow nanoshell formation and collapse in binary solid solutions with large range of solubility. Journal of Physics Condensed Matter, 2009, 21, 415303.	1.8	23
58	Size distribution and morphology of Cu <sub>6</sub> Sn <sub>5</sub> scallops in wetting reaction between molten solder and copper. Acta Materialia, 2008, 56, 1075-1083.	7.9	103
59	On the Spatial Stability and Bifurcation of the Kirkendall Plane during Solid-State Interdiffusion. Critical Reviews in Solid State and Materials Sciences, 2008, 33, 210-233.	12.3	12
60	Analytical modeling of reservoir effect on electromigration in Cu interconnects. Journal of Materials Research, 2007, 22, 152-156.	2.6	3
61	Ostwald ripening with non-equilibrium vacancies. Acta Materialia, 2006, 54, 785-791.	7.9	18
62	DIGM - Entropy Balance and Free Energy Release Rate. Defect and Diffusion Forum, 2006, 249, 81-90.	0.4	1
63	Thermomigration in SnPb composite flip chip solder joints. Applied Physics Letters, 2006, 88, 141911.	3.3	144
64	Effect of entropy production on microstructure change in eutectic SnPb flip chip solder joints by thermomigration. Applied Physics Letters, 2006, 89, 221906.	3.3	59
65	Reservoir effect and the role of low current density regions on electromigration lifetimes in copper interconnects. Journal of Materials Research, 2006, 21, 2241-2245.	2.6	14
66	Phase diagram versus diagram of solubility: What is the difference for nanosystems?. Acta Materialia, 2005, 53, 5025-5032.	7.9	67
67	Nucleation in a Concentration Gradient. , 2005, , 375-417.		4
68	3D-Simulation of Void Formation, Growth and Migration under Electromigration. Defect and Diffusion Forum, 2005, 237-240, 1306-1311.	0.4	0
69	Peculiarities of Precipitation of Intermediate Phase in Ternary Alloys. Defect and Diffusion Forum, 2005, 237-240, 1234-1239.	0.4	0
70	Modeling of Phase Competition and Diffusion Zone Morphology Evolution at Initial Stages of Reaction Diffusion. Defect and Diffusion Forum, 2005, 237-240, 1193-1198.	0.4	7
71	3D Monte-Carlo Model of Deposition and Grain Growth in Thin Films. Defect and Diffusion Forum, 2005, 237-240, 1281-1286.	0.4	2
72	Phase Formation under Pulse Loading. Defect and Diffusion Forum, 2005, 237-240, 715-720.	0.4	0

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73	Three-dimensional simulation of void migration at the interface between thin metallic film and dielectric under electromigration. <i>Journal of Applied Physics</i> , 2005, 98, 103508.	2.5	32
74	Electromigration-induced grain rotation in anisotropic conducting beta tin. <i>Applied Physics Letters</i> , 2005, 86, 241902.	3.3	74
75	In situ observation of electromigration-induced void migration in dual-damascene Cu interconnect structures. <i>Applied Physics Letters</i> , 2004, 85, 2502-2504.	3.3	95
76	Suppression of intermediate phase nucleation in binary couples with metastable solubility. <i>Acta Materialia</i> , 2004, 52, 4305-4315.	7.9	42
77	A model of the growth of intermediate phase islands in multilayers. <i>Microelectronic Engineering</i> , 2003, 70, 529-532.	2.4	17
78	Theory of normal grain growth in normalized size space. <i>Acta Materialia</i> , 2003, 51, 3895-3904.	7.9	27
79	Physics and materials challenges for lead-free solders. <i>Journal of Applied Physics</i> , 2003, 93, 1335-1353.	2.5	335
80	Diffusion at the Segregated Grain Boundaries - Competitive Segregation or Diffusional Competition?. <i>Defect and Diffusion Forum</i> , 2003, 216-217, 249-252.	0.4	0
81	Spatio-temporal instabilities of the Kirkendall marker planes during interdiffusion in $\text{In}^{2+}$ -AuZn. <i>Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties</i> , 2002, 82, 943-954.	0.6	36
82	Kinetic theory of flux-driven ripening. <i>Physical Review B</i> , 2002, 66, .	3.2	191
83	Initial Stage of Reactive Diffusion: Nucleation and Avrami Kinetics. <i>Defect and Diffusion Forum</i> , 2001, 194-199, 1625-1630.	0.4	6
84	Microstructural Stability of the Kirkendall Plane in Solid-State Diffusion. <i>Physical Review Letters</i> , 2001, 86, 3352-3355.	7.8	64
85	Kinetics of nucleation in the concentration gradient. <i>Journal of Physics Condensed Matter</i> , 2001, 13, 2767-2787.	1.8	48
86	Interdiffusion-Independent Modes in Multicomponent Systems. <i>Defect and Diffusion Forum</i> , 2001, 194-199, 201-208.	0.4	4
87	Possible Mechanism of Anomalous Mass Transfer under Pulse Loading. <i>Defect and Diffusion Forum</i> , 2001, 194-199, 1469-1476.	0.4	2
88	Patterning in Reactive Diffusion. <i>Defect and Diffusion Forum</i> , 2001, 194-199, 1491-1502.	0.4	14
89	Instabilities of Kirkendall Planes. <i>Defect and Diffusion Forum</i> , 2001, 194-199, 195-200.	0.4	2
90	Initial Stage of Reactive Diffusion - Theory and Simulation. <i>Solid State Phenomena</i> , 2000, 72, 191-196.	0.3	1

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91	Nucleation and Growth in Nanometric Volumes. Journal of Metastable and Nanocrystalline Materials, 1999, 7, 17-40.	0.1	9
92	“Hot intermixing” in the sintering of powder systems (An intuitive model of accelerated) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 702	0.8	1
93	Interdiffusion and solid state reactions in powder mixtures—one more model. Acta Materialia, 1998, 46, 3343-3353.	7.9	20
94	Effect of sharp concentration gradients on the nucleation of intermetallics in disordered solids: influence of the embryo shape. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1998, 77, 1471-1479.	0.6	2
95	Oscillatory regime of ordering during interdiffusion. Physical Review B, 1998, 58, 2551-2555.	3.2	11
96	Monte-Carlo Simulation of Nucleation and Competition of Intermediate Phases at the Initial Stage of Reactive Diffusion. Defect and Diffusion Forum, 1997, 143-147, 661-666.	0.4	3
97	Thermodynamics and Kinetics of Nucleation in the Process of Reactive Diffusion. Defect and Diffusion Forum, 1997, 143-147, 667-670.	0.4	0
98	Problem of Choice and Attractors in the Processes of Phase Nucleation, Competition, Growth and Ternary Diffusion. Defect and Diffusion Forum, 1997, 143-147, 683-688.	0.4	6
99	MD-Simulation and Phenomenological Description of the Mass-Transfer and Phase Formation Initiated by the Shock Waves in Alloys. Defect and Diffusion Forum, 1997, 143-147, 1601-1606.	0.4	0
100	Calculation Of the Interdiffusion Coefficients in Multicomponent Systems. Defect and Diffusion Forum, 1997, 143-147, 689-694.	0.4	4
101	Reactive Diffusion and Stresses. Defect and Diffusion Forum, 1996, 129-130, 95-126.	0.4	6
102	Stresses and Two/Phase Zone Formation during Interdiffusion in Ternary Systems. Defect and Diffusion Forum, 1996, 129-130, 307-308.	0.4	1
103	Kirill Petrovich Gurov (Obituary). Physics-Uspekhi, 1995, 38, 565-566.	2.2	0
104	A Linear Phase Growth with Non-Equilibrium Vacancies. Materials Science Forum, 1994, 155-156, 55-58.	0.3	14
105	A simple way of describing the diffusion phase growth in cylindrical and spherical samples. Journal of Applied Physics, 1993, 73, 4881-4884.	2.5	28
106	On the description of solid state amorphizing reactions. Journal of Physics Condensed Matter, 1992, 4, 4753-4758.	1.8	21
107	Peculiarities of Intermediate Phase Nucleation in the Process of Chemical Diffusion. Solid State Phenomena, 1992, 23-24, 117-122.	0.3	21
108	Mathematical simulation of the initial stage of prediffusion homogenization in sintering of a powder mixture. Soviet Powder Metallurgy and Metal Ceramics (English Translation of Poroshkovaya) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 57 T	0.1	1

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109	Phase formation in the initial stage of sintering a binary powder mixture. Soviet Powder Metallurgy and Metal Ceramics (English Translation of Poroshkovaya Metallurgiya), 1989, 28, 192-195.	0.1	0
110	Manifestation of the Kirkendall effect during interdiffusion in an alloy with a fine-grained structure. Soviet Powder Metallurgy and Metal Ceramics (English Translation of Poroshkovaya Metallurgiya), 1989, 28, 9-11.	0.1	0
111	Nonequilibrium Vacancies in Nanosystems. Defect and Diffusion Forum, 0, 264, 109-116.	0.4	15
112	Model of Lateral Growth Stage during Reactive Phase Formation. Defect and Diffusion Forum, 0, 277, 47-52.	0.4	7
113	Composition Fluctuations in the Ostwald Ripening. Defect and Diffusion Forum, 0, 277, 187-192.	0.4	0
114	Models of Mutual Solubility Increasing under the Pulse Loading. Defect and Diffusion Forum, 0, 277, 69-74.	0.4	0
115	Role of Finite Vacancy Relaxation Rate at SHS Reactions in Nanosized Multilayers. Defect and Diffusion Forum, 0, 309-310, 215-222.	0.4	0
116	Flux Driven Nucleation at Interfaces during Reactive Diffusion – New Solution of an Old Problem. Defect and Diffusion Forum, 0, 323-325, 55-60.	0.4	2
117	Influence of Limited Efficiency and Competition of Vacancy Sinks/Sources on the Diffusion-Controlled Intermediate Phase Growth. , 0, 2, 141-158.		1
118	Grain Growth in Open Systems. , 0, 5, 229-244.		4
119	Tracer Diffusion and Ordering in FCC Structures - Stochastic Kinetic Mean-Field Method vs. Kinetic Monte Carlo. Defect and Diffusion Forum, 0, 383, 59-65.	0.4	6