Andriy M Gusak

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/3638025/publications.pdf

Version: 2024-02-01

119	2,314	304743	233421
papers	citations	22	45
		h-index	g-index

143	143	143	1281
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Physics and materials challenges for lead-free solders. Journal of Applied Physics, 2003, 93, 1335-1353.	2.5	335
2	Kinetic theory of flux-driven ripening. Physical Review B, 2002, 66, .	3.2	191
3	Thermomigration in SnPb composite flip chip solder joints. Applied Physics Letters, 2006, 88, 141911.	3.3	144
4	Ambient dissolutionâ€“recrystallization towards large-scale preparation of V2O5 nanobelts for high-energy battery applications. Nano Energy, 2016, 22, 583-593.	16.0	112
5	Size distribution and morphology of Cu6Sn5 scallops in wetting reaction between molten solder and copper. Acta Materialia, 2008, 56, 1075-1083.	7.9	103
6	In situobservation of electromigration-induced void migration in dual-damascene Cu interconnect structures. Applied Physics Letters, 2004, 85, 2502-2504.	3.3	95
7	Electromigration-induced grain rotation in anisotropic conducting beta tin. Applied Physics Letters, 2005, 86, 241902.	3.3	74
8	Phase diagram versus diagram of solubility: What is the difference for nanosystems?. Acta Materialia, 2005, 53, 5025-5032.	7.9	67
9	Microstructural Stability of the Kirkendall Plane in Solid-State Diffusion. Physical Review Letters, 2001, 86, 3352-3355.	7.8	64
10	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
11	Interaction between the Kirkendall effect and the inverse Kirkendall effect in nanoscale particles. Acta Materialia, 2009, 57, 3367-3373.	7.9	57
12	Pseudopartial wetting of WC/WC grain boundaries in cemented carbides. Materials Letters, 2015, 147, 105-108.	2.6	51
13	Kinetics of nucleation in the concentration gradient. Journal of Physics Condensed Matter, 2001, 13, 2767-2787.	1.8	48
14	Suppression of intermediate phase nucleation in binary couples with metastable solubility. Acta Materialia, 2004, 52, 4305-4315.	7.9	42
15	Pseudopartial wetting of grain boundaries in severely deformed Al-Zn alloys. Russian Journal of Non-Ferrous Metals, 2015, 56, 44-51.	0.6	42
16	Spatio-temporal instabilities of the Kirkendall marker planes during interdiffusion in Î²'-AuZn. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2002, 82, 943-954.	0.6	36
17	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
18	Three-dimensional simulation of void migration at the interface between thin metallic film and dielectric under electromigration. Journal of Applied Physics, 2005, 98, 103508.	2.5	32

#	Article	IF	Citations
19	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
20	Nucleation and Atomic Layer Reaction in Nickel Silicide for Defect-Engineered Si Nanochannels. Nano Letters, 2013, 13, 2748-2753.	9.1	28
21	Stochastic kinetic mean field model. Computer Physics Communications, 2016, 204, 31-37.	7.5	28
22	Theory of normal grain growth in normalized size space. Acta Materialia, 2003, 51, 3895-3904.	7.9	27
23	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
24	Mean-field and quasi-phase-field models of nucleation and phase competition in reactive diffusion. Philosophical Magazine, 2013, 93, 1999-2012.	1.6	23
25	On the description of solid state amorphizing reactions. Journal of Physics Condensed Matter, 1992, 4, 4753-4758.	1.8	21
26	Peculiarities of Intermediate Phase Nucleation in the Process of Chemical Diffusion. Solid State Phenomena, 1992, 23-24, 117-122.	0.3	21
27	Interdiffusion and solid state reactions in powder mixturesâ€”one more model. Acta Materialia, 1998, 46, 3343-3353.	7.9	20
28	Chemical interdiffusion in binary systems; interface barriers and phase competition. Journal of Applied Physics, 2011, 110, 123705.	2.5	20
29	Flux-driven nucleation at interfaces during reactive diffusion. Philosophical Magazine Letters, 2011, 91, 610-620.	1.2	20
30	Effective Temperature of High Pressure Torsion in Zr-Nb Alloys. High Temperature Materials and Processes, 2012, 31, .	1.4	20
31	Competition of K and F sinks during void formation. Physics of Metals and Metallography, 2013, 114, 197-206.	1.0	20
32	Ostwald ripening with non-equilibrium vacancies. Acta Materialia, 2006, 54, 785-791.	7.9	18
33	A model of the growth of intermediate phase islands in multilayers. Microelectronic Engineering, 2003, 70, 529-532.	2.4	17
34	Flux-driven cellular precipitation in open system to form porous Cu₃Sn. Philosophical Magazine, 2016, 96, 1318-1331.	1.6	17
35	Wetting of grain boundaries in hard-magnetic Nd-Fe-B alloys. Russian Journal of Non-Ferrous Metals, 2012, 53, 450-456.	0.6	16
36	Nonequilibrium Vacancies in Nanosystems. Defect and Diffusion Forum, 0, 264, 109-116.	0.4	15

#	Article	IF	Citations
37	Phase growth competition in solid/liquid reactions between copper or Cu3Sn compound and liquid tin-based solder. Journal of Materials Science: Materials in Electronics, 2014, 25, 4664-4672.	2.2	15
38	Elementary model of severe plastic deformation by KoBo process. Journal of Applied Physics, 2014, 115, .	2.5	15
39	A Linear Phase Growth with Non-Equilibrium Vacancies. Materials Science Forum, 1994, 155-156, 55-58.	0.3	14
40	Patterning in Reactive Diffusion. Defect and Diffusion Forum, 2001, 194-199, 1491-1502.	0.4	14
41	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
42	Phase competition in solid-state reactive diffusion revisitedâ€”Stochastic kinetic mean-field approach. Journal of Chemical Physics, 2019, 150, 174109.	3.0	14
43	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
44	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
45	Oscillatory regime of ordering during interdiffusion. Physical Review B, 1998, 58, 2551-2555.	3.2	11
46	Cu3Sn suppression criterion for solid copper/molten tin reaction. Philosophical Magazine Letters, 2014, 94, 217-224.	1.2	11
47	Nucleation and Growth in Nanometric Volumes. Journal of Metastable and Nanocrystalline Materials, 1999, 7, 17-40.	0.1	9
48	Theory of Repeating Nucleation in Point Contact Reactions between Nanowires. Nano Letters, 2010, 10, 4799-4806.	9.1	9
49	Martinâ€™s Kinetic Mean-Field Model Revisitedâ€”Frequency Noise Approach versus Monte Carlo. Metallofizika I Noveishie Tekhnologii, 2018, 40, 1415-1435.	0.5	9
50	Inverse problem for SHS in multilayer nanofoils: Prediction of process parameters for single-stage SHS reaction. International Journal of Self-Propagating High-Temperature Synthesis, 2013, 22, 222-231.	0.5	8
51	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
52	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
53	Model of Lateral Growth Stage during Reactive Phase Formation. Defect and Diffusion Forum, 0, 277, 47-52.	0.4	7
54	Thermodynamics of void nucleation in nanoparticles. Philosophical Magazine Letters, 2011, 91, 741-750.	1.2	7

#	Article	IF	Citations
55	Contribution of tilt boundaries to the total energy spectrum of grain boundaries in polycrystals. JETP Letters, 2013, 96, 582-587.	1.4	7
56	Criteria of kinetic suppression of lateral growth of intermediate phases. Philosophical Magazine Letters, 2015, 95, 110-121.	1.2	7
57	Kinetic pinning versus capillary pinning of voids at the moving interface during reactive diffusion. Philosophical Magazine Letters, 2017, 97, 1-10.	1.2	7
58	Reactive Diffusion and Stresses. Defect and Diffusion Forum, 1996, 129-130, 95-126.	0.4	6
59	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
60	Initial Stage of Reactive Diffusion: Nucleation and Avrami Kinetics. Defect and Diffusion Forum, 2001, 194-199, 1625-1630.	0.4	6
61	Interrelation of depletion and segregation in decomposition of nanoparticles. Philosophical Magazine, 2013, 93, 1677-1689.	1.6	6
62	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
63	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
64	A comparison between complete and incomplete cellular precipitations. Scripta Materialia, 2018, 146, 133-135.	5.2	6
65	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
66	Calculation Of the Interdiffusion Coefficients in Multicomponent Systems. Defect and Diffusion Forum, 1997, 143-147, 689-694.	0.4	4
67	Interdiffusion-Independent Modes in Multicomponent Systems. Defect and Diffusion Forum, 2001, 194-199, 201-208.	0.4	4
68	Nucleation in a Concentration Gradient. , 2005, , 375-417.		4
69	Model of phase separation and of morphology evolution in two-phase alloy. Philosophical Magazine, 2013, 93, 2013-2025.	1.6	4
70	Competition between Kirkendall shift and backstress in interdiffusion revisited â€“ simple analytic model. Philosophical Magazine, 2014, 94, 1153-1165.	1.6	4
71	Grain Growth in Open Systems. , 0, 5, 229-244.		4
72	The Competition of Intermediate Phases in the Diffusion Zone. Inorganic Materials: Applied Research, 2019, 10, 517-524.	0.5	4

#	Article	IF	Citations
73	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
74	Analytical modeling of reservoir effect on electromigration in Cu interconnects. Journal of Materials Research, 2007, 22, 152-156.	2.6	3
75	Models of Interdiffusion in a Polycrystalline Alloy: Kirkendall Effect versus Non-Equilibrium Vacancies and Backstress. Defect and Diffusion Forum, 2011, 309-310, 135-142.	0.4	3
76	A new physical model for life time prediction of Pb-free solder joints in electromigration tests. , 2012, , .		3
77	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
78	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
79	Possible Mechanism of Anomalous Mass Transfer under Pulse Loading. Defect and Diffusion Forum, 2001, 194-199, 1469-1476.	0.4	2
80	Instabilities of Kirkendall Planes. Defect and Diffusion Forum, 2001, 194-199, 195-200.	0.4	2
81	3D Monte-Carlo Model of Deposition and Grain Growth in Thin Films. Defect and Diffusion Forum, 2005, 237-240, 1281-1286.	0.4	2
82	Flux Driven Nucleation at Interfaces during Reactive Diffusion â€“ New Solution of an Old Problem. Defect and Diffusion Forum, 0, 323-325, 55-60.	0.4	2
83	Possibility of a shape phase transition for solidification of tin at scallop-like surfaces of Cu₆Sn₅. Philosophical Magazine Letters, 2013, 93, 166-173.	1.2	2
84	Diffusion-Controlled Phase Transformations in Open Systems. , 2017, , 37-100.		2
85	Alternative algorithms for simultaneous modeling of ordering and intermediate compound growth during reactive diffusion. Computational Materials Science, 2021, 187, 110114.	3.0	2
86	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
87	Stresses and Two/Phase Zone Formation during Interdiffusion in Ternary Systems. Defect and Diffusion Forum, 1996, 129-130, 307-308.	0.4	1
88	â€œHot intermixingâ€•in the sintering of powder systems (An intuitive model of accelerated) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 142	0.8	1
89	Initial Stage of Reactive Diffusion - Theory and Simulation. Solid State Phenomena, 2000, 72, 191-196.	0.3	1
90	DIGM - Entropy Balance and Free Energy Release Rate. Defect and Diffusion Forum, 2006, 249, 81-90.	0.4	1

#	Article	IF	Citations
91	Influence of Limited Efficiency and Competition of Vacancy Sinks/Sources on the Diffusion-Controlled Intermediate Phase Growth. , 0, 2, 141-158.		1
92	Anisotropic Nucleation, Growth and Ripening under Stirringâ€"A Phenomenological Model. Entropy, 2020, 22, 1254.	2.2	1
93	Elementary models of the â€œflux driven anti-ripeningâ€•during nanobelt growth. Physical Chemistry Chemical Physics, 2020, 22, 9740-9748.	2.8	1
94	Pore Evolution at Reactive Diffusion in Spherical and Cylindrical Nanoparticles. Ukrainian Journal of Physics, 2013, 58, 171-181.	0.2	1
95	NUCLEATION AND COMPETITION OF COMPOUNDS IN STRONGLY INHOMOGENEOUS OPEN SYSTEMS â€“ NEW DEVELOPMENTS. VÃ¬snik ÄŒerkasÊ¹kogo UnÃ¬versitetu SerÃ¬Ã¢ FÃ¬ziko-matematiÄnÃ¬ Nauki, 2019, , 9-30.	0.0	1
96	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 50 537		
97	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
98	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
99	Kirill Petrovich Gurov (Obituary). Physics-Uspekhi, 1995, 38, 565-566.	2.2	0
100	Thermodynamics and Kinetics of Nucleation in the Process of Reactive Diffusion. Defect and Diffusion Forum, 1997, 143-147, 667-670.	0.4	0
101	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
102	Diffusion at the Segregated Grain Boundaries - Competitive Segregation or Diffusional Competition?. Defect and Diffusion Forum, 2003, 216-217, 249-252.	0.4	0
103	3D-Simulation of Void Formation, Growth and Migration under Electromigration. Defect and Diffusion Forum, 2005, 237-240, 1306-1311.	0.4	0
104	Peculiarities of Precipitation of Intermediate Phase in Ternary Alloys. Defect and Diffusion Forum, 2005, 237-240, 1234-1239.	0.4	0
105	Phase Formation under Pulse Loading. Defect and Diffusion Forum, 2005, 237-240, 715-720.	0.4	0
106	Composition Fluctuations in the Ostwald Ripening. Defect and Diffusion Forum, 0, 277, 187-192.	0.4	0
107	Models of Mutual Solubility Increasing under the Pulse Loading. Defect and Diffusion Forum, 0, 277, 69-74.	0.4	0
108	Role of Finite Vacancy Relaxation Rate at SHS Reactions in Nanosized Multilayers. Defect and Diffusion Forum, 0, 309-310, 215-222.	0.4	0

#	Article	IF	Citations
109	Diffusion in Point Contact Reaction. Defect and Diffusion Forum, 2011, 309-310, 143-148.	0.4	0
110	Dynamical Imaging of Nickel Disilicide Nucleation and Step Flow Propagation in Defect-Engineered Si Nanowire. ECS Transactions, 2014, 64, 101-108.	0.5	0
111	Growth kinetics of nanoshells of the intermediate phase with allowance for finite reaction rates at interphase boundaries. Physics of Metals and Metallography, 2014, 115, 268-276.	1.0	0
112	Electromigration revisited: competition between Kirkendall shift and backstress in pure metals and two-phase alloys. Philosophical Magazine, 2015, 95, 1093-1104.	1.6	0
113	â€œPredator and Preyâ€•Model Revisited â€“ Influence of External Fluxes and Noise. Journal of Mathematical Sciences, 2020, 246, 648-663.	0.4	0
114	MODELING OF THE KINETICS OF THE ALLOYS DECOMPOSITION AND HOMOGENIZATION BY THE MEAN- FIELD METHOD. VÃ¬snik ÄŒerkasÊ¹kogo UnÃ¬versitetu SerÃ¬Ã¢ FÃ¬ziko-matematiÄnÃ¬ Nauki, 2019, , 120-136.	0.0	0
115	ELEMENTARY MODEL OF DIRECT BONDING AT LOW TEMPERATURE. VÃ¬snik ÄŒerkasÊ¹kogo UnÃ¬versitetu SerÃ¬Ã¢ FÃ¬ziko-matematiÄnÃ¬ Nauki, 2019, , 51-59.	0.0	0
116	NUCLEATION IN METASTABLE SOLID SOLUTION â€“ STOCHASTIC KINETIC MEAN FIELD APPROACH VERSUS CLASSICAL NUCLEATION THEORY. VÃ¬snik ÄŒerkasÊ¹kogo UnÃ¬versitetu SerÃ¬Ã¢ FÃ¬ziko-matematiÄnÃ¬ Nauki, 2019, , 60-67.	0.0	0
117	MODELING OF CONCENTRATION AND TEMPERATURE DEPENDENCIES OF INCUBATION TIME AT DECOMPOSITION OF SOLID SOLUTION BY MONTE CARLO METHOD. VÃ¬snik ÄŒerkasÊ¹kogo UnÃ¬versitetu SerÃ¬Ã¢ FÃ¬ziko-matematiÄnÃ¬ Nauki, 2019, , 3-11.	0.0	0
118	"Predator and prey" model revisited - influence of external fluxes and noise. Ukrainian Mathematical Bulletin, 2019, 16, 536-556.	0.5	0
119	Incubation Time at Decomposition of Solid Solution â€“ Stochastic Kinetic Mean-Field Versus Monte Carlo Simulation. Ukrainian Journal of Physics, 2020, 65, 488.	0.2	0