Koichi Kakimoto

List of Publications by Year
in descending order

136	2,356	218677	276875
papers	citations	26 h-index	41 g-index

141	141	141	1116
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Effects of sodium on electrical properties in Cu2ZnSnS4 single crystal. Applied Physics Letters, 2014, 104, .	3.3	113
2	Partly three-dimensional global modeling of a silicon Czochralski furnace. I. Principles, formulation and implementation of the model. International Journal of Heat and Mass Transfer, 2005, 48, 4481-4491.	4.8	109
3	Carbon concentration and particle precipitation during directional solidification of multicrystalline silicon for solar cells. Journal of Crystal Growth, 2008, 310, 2192-2197.	1.5	94
4	Study on thermal stress in a silicon ingot during a unidirectional solidification process. Journal of Crystal Growth, 2008, 310, 4330-4335.	1.5	90
5	Thermodynamical analysis of oxygen incorporation from a quartz crucible during solidification of multicrystalline silicon for solar cell. Journal of Crystal Growth, 2008, 310, 4666-4671.	1.5	70
6	Correlation between intrinsic defects and electrical properties in the high-quality Cu2ZnSnS4 single crystal. Applied Physics Letters, 2013, 103, .	3.3	69
7	Spoke patterns on molten silicon in Czochralski system. Journal of Crystal Growth, 1994, 144, 20-28.	1.5	65
8	Global Simulation of Coupled Carbon and Oxygen Transport in a Unidirectional Solidification Furnace for Solar Cells. Journal of the Electrochemical Society, 2010, 157, H153.	2.9	55
9	Dynamic simulation of temperature and iron distributions in a casting process for crystalline silicon solar cells with a global model. Journal of Crystal Growth, 2006, 292, 515-518.	1.5	54
10	Oxygen transfer during single silicon crystal growth in Czochralski system with vertical magnetic fields. Journal of Crystal Growth, 1996, 163, 238-242.	1.5	53
11	Analysis of oxygen incorporation in unidirectionally solidified multicrystalline silicon for solar cells. Journal of Crystal Growth, 2008, 310, 2204-2208.	1.5	49
12	Observation of Low-Temperature Elastic Softening due to Vacancy in Crystalline Silicon. Journal of the Physical Society of Japan, 2006, 75, 044602.	1.6	44
13	Effects of argon flow on heat transfer in a directional solidification process for silicon solar cells. Journal of Crystal Growth, 2011, 318, 298-303.	1.5	44
14	Crystal Growth from the Melt under External Force Fields. MRS Bulletin, 2009, 34, 251-258.	3.5	42
15	Three-Dimensional Modeling of Basal Plane Dislocations in 4H-SiC Single Crystals Grown by the Physical Vapor Transport Method. Crystal Growth and Design, 2014, 14, 1272-1278.	3.0	40
16	Partly three-dimensional global modeling of a silicon Czochralski furnace. II. Model application: Analysis of a silicon Czochralski furnace in a transverse magnetic field. International Journal of Heat and Mass Transfer, 2005, 48, 4492-4497.	4.8	39
17	Investigation of oxygen distribution in electromagnetic CZâ€“Si melts with a transverse magnetic field using 3D global modeling. Journal of Crystal Growth, 2007, 299, 48-58.	1.5	38
18	Flow instability of molten silicon in the Czochralski configuration. Journal of Crystal Growth, 1990, 102, 16-20.	1.5	37

#	Article	IF	Citations
19	Numerical simulation of molten silicon flow; comparison with experiment. Journal of Crystal Growth, 1991, 114, 715-725.	1.5	37
20	Oxygen distribution at a solidâ€“liquid interface of silicon under transverse magnetic fields. Journal of Crystal Growth, 2000, 212, 429-437.	1.5	37
21	An analysis of temperature distribution near the meltâ€“crystal interface in silicon Czochralski growth with a transverse magnetic field. Journal of Crystal Growth, 2005, 282, 49-59.	1.5	35
22	Influence of Back-Diffusion of Iron Impurity on Lifetime Distribution near the Seed-Crystal Interface in Seed Cast-Grown Monocrystalline Silicon by Numerical Modeling. Crystal Growth and Design, 2012, 12, 522-525.	3.0	34
23	Effects of crystal rotation rate on the meltâ€“crystal interface of a CZ-Si crystal growth in a transverse magnetic field. Journal of Crystal Growth, 2008, 310, 306-312.	1.5	33
24	Numerical analysis of influence of crucible shape on interface shape in a unidirectional solidification process. Journal of Crystal Growth, 2008, 310, 1142-1147.	1.5	32
25	Oxygen distribution in silicon melt under inhomogeneous transverse-magnetic fields. Journal of Crystal Growth, 2001, 230, 100-107.	1.5	30
26	Influence of reaction between silica crucible and graphite susceptor on impurities of multicrystalline silicon in a unidirectional solidification furnace. Journal of Crystal Growth, 2011, 314, 239-245.	1.5	29
27	Dislocation-density-based modeling of the plastic behavior of 4Hâ€“SiC single crystals using the Alexanderâ€“Haasen model. Journal of Crystal Growth, 2014, 386, 215-219.	1.5	27
28	Three-dimensional global modeling of a unidirectional solidification furnace with square crucibles. Journal of Crystal Growth, 2007, 303, 165-169.	1.5	26
29	Three-dimensional global analysis of thermal stress and dislocations in a silicon ingot during a unidirectional solidification process with a square crucible. Journal of Crystal Growth, 2010, 312, 3261-3266.	1.5	26
30	Growth and characterization of Cu₂ ZnSnS₄ single crystals. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 1328-1331.	1.8	26
31	Effect of Cooling Rate on the Activation of Slip Systems in Seed Cast-Grown Monocrystalline Silicon in the [001] and [111] Directions. Crystal Growth and Design, 2013, 13, 2661-2669.	3.0	26
32	Numerical investigation of carbon contamination during the melting process of Czochralski silicon crystal growth. Journal of Crystal Growth, 2015, 417, 58-64.	1.5	26
33	Thermodynamic analysis of SiC polytype growth by physical vapor transport method. Journal of Crystal Growth, 2011, 324, 78-81.	1.5	24
34	Effects of rotating magnetic fields on temperature and oxygen distributions in silicon melt. Journal of Crystal Growth, 2002, 237-239, 1785-1790.	1.5	23
35	Analysis of SiC crystal sublimation growth by fully coupled compressible multi-phase flow simulation. Journal of Crystal Growth, 2010, 312, 3349-3355.	1.5	23
36	Study of the effect of doped impurities on polytype stability during PVT growth of SiC using 2D nucleation theory. Journal of Crystal Growth, 2014, 385, 95-99.	1.5	23

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37	Mechanisms of heat and oxygen transfer in silicon melt in an electromagnetic Czochralski system. Journal of Crystal Growth, 2002, 243, 55-65.	1.5	21
38	An investigation of thermal conductivity of silicon as a function of isotope concentration by molecular dynamics. Journal of Crystal Growth, 2004, 267, 452-457.	1.5	21
39	Three-dimensional analysis of dislocation multiplication in single-crystal silicon under accurate control of cooling history of temperature. Journal of Crystal Growth, 2014, 396, 7-13.	1.5	21
40	Analysis of temperature and impurity distributions in a unidirectional-solidification process for multi-crystalline silicon of solar cells by a global model. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2006, 134, 269-272.	3.5	20
41	Numerical Investigation of the Influence of Material Property of a Crucible on Interface Shape in a Unidirectional Solidification Process. Crystal Growth and Design, 2009, 9, 267-272.	3.0	20
42	Reducing impurities of multicrystalline silicon in a unidirectional solidification furnace for solar cells. Jom, 2011, 63, 43-46.	1.9	20
43	Growth of semiconductor silicon crystals. Progress in Crystal Growth and Characterization of Materials, 2016, 62, 273-285.	4.0	20
44	Numerical analysis of the formation of Si3N4 and Si2N2O during a directional solidification process in multicrystalline silicon for solar cells. Journal of Crystal Growth, 2009, 311, 2615-2620.	1.5	19
45	Thermodynamical analysis of polytype stability during PVT growth of SiC using 2D nucleation theory. Journal of Crystal Growth, 2012, 352, 177-180.	1.5	19
46	Relationship between oxygen impurity distribution in multicrystalline solar cell silicon and the use of top and side heaters during manufacture. Journal of Crystal Growth, 2013, 375, 62-66.	1.5	19
47	DFT modeling of carbon incorporation in GaN(0001) and GaN(0001Â¯) metalorganic vapor phase epitaxy. Applied Physics Letters, 2017, 111, .	3.3	19
48	Numerical study of the effects of cusp-shaped magnetic fields and thermal conductivity on the melt-crystal interface in CZ crystal growth. Crystal Research and Technology, 2003, 38, 716-725.	1.3	18
49	3D global analysis of CZ-Si growth in a transverse magnetic field with rotating crucible and crystal. Crystal Research and Technology, 2005, 40, 347-351.	1.3	18
50	Theoretical analyses of In incorporation and compositional instability in coherently grown InGaN thin films. Physica Status Solidi C: Current Topics in Solid State Physics, 2010, 7, 2249-2251.	0.8	18
51	Time-dependent behavior of melt flow in the industrial scale silicon Czochralski growth with a transverse magnetic field. Journal of Crystal Growth, 2019, 519, 77-83.	1.5	17
52	3D global analysis of CZâ€“Si growth in a transverse magnetic field with various crystal growth rates. Journal of Crystal Growth, 2005, 275, e1521-e1526.	1.5	16
53	3D numerical analysis of the influence of material property of a crucible on stress and dislocation in multicrystalline silicon for solar cells. Journal of Crystal Growth, 2011, 318, 259-264.	1.5	16
54	Anisotropic Thermal Stress Simulation with Complex Crystalâ€“Melt Interface Evolution for Seeded Growth of Monocrystalline Silicon. Crystal Growth and Design, 2012, 12, 5708-5714.	3.0	16

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55	Optimization of power control in the reduction of basal plane dislocations during PVT growth of 4H-SiC single crystals. Journal of Crystal Growth, 2014, 392, 92-97.	1.5	16
56	Evaluation of residual strain in directional solidified monoâ€Si ingots. Physica Status Solidi C: Current Topics in Solid State Physics, 2013, 10, 141-145.	0.8	15
57	Global analysis of effects of magnetic field configuration on meltâ€“crystal interface shape and melt flow in CZ-Si crystal growth. Journal of Crystal Growth, 2005, 275, e2135-e2139.	1.5	14
58	Numerical investigation of induction heating and heat transfer in a SiC growth system. Crystal Research and Technology, 2007, 42, 971-975.	1.3	14
59	Global analysis of GaN growth using a solution technique. Journal of Crystal Growth, 2008, 310, 1790-1793.	1.5	14
60	Reduction of Oxygen Impurity in Multicrystalline Silicon Production. International Journal of Photoenergy, 2013, 2013, 1-6.	2.5	12
61	Modeling the Non-Equilibrium Process of the Chemical Adsorption of Ammonia on GaN(0001) Reconstructed Surfaces Based on Steepest-Entropy-Ascent Quantum Thermodynamics. Materials, 2017, 10, 948.	2.9	12
62	Asymmetric Distribution of Oxygen Concentration in the Si Melt of a Czochralski System. Journal of the Electrochemical Society, 1996, 143, 722-725.	2.9	11
63	Estimation of growth rate in unidirectionally solidified multicrystalline silicon by the growth-induced striation method. Journal of Crystal Growth, 2008, 310, 2697-2701.	1.5	11
64	Analysis of local segregation of impurities at a silicon meltâ€“crystal interface during crystal growth in transverse magnetic field-applied Czochralski method. Journal of Crystal Growth, 2009, 311, 2313-2316.	1.5	11
65	Effect of the packing structure of silicon chunks on the melting process and carbon reduction in Czochralski silicon crystal growth. Journal of Crystal Growth, 2017, 468, 595-600.	1.5	11
66	Dislocation behavior in seedâ€cast grown Si ingots based on crystallographic orientation. Progress in Photovoltaics: Research and Applications, 2016, 24, 1513-1522.	8.1	10
67	Absolute surface energies of oxygen-adsorbed GaN surfaces. Journal of Crystal Growth, 2020, 549, 125868.	1.5	10
68	Investigation of thermal conductivity of nitride mixed crystals and superlattices by molecular dynamics. Physica Status Solidi C: Current Topics in Solid State Physics, 2006, 3, 1695-1699.	0.8	9
69	Development of Crystal Growth Technique of Silicon by the Czochralski Method. Acta Physica Polonica A, 2013, 124, 227-230.	0.5	9
70	Numerical analysis of the relation between dislocation density and residual strain in silicon ingots used in solar cells. Journal of Crystal Growth, 2017, 474, 130-134.	1.5	9
71	Numerical analyses and experimental validations on transport and control of carbon in Czochralski silicon crystal growth. Journal of Crystal Growth, 2018, 499, 8-12.	1.5	9
72	Heat and mass transfer during crystal growth. Computational Materials Science, 1998, 10, 127-133.	3.0	8

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73	Directional Solidification of Multicrystalline Silicon Using the Accelerated Crucible Rotation Technique. Crystal Growth and Design, 2008, 8, 2525-2527.	3.0	8
74	Numerical analysis of the velocity of SiC growth by the top seeding method. Journal of Crystal Growth, 2012, 348, 71-74.	1.5	8
75	Numerical investigation of carbon and silicon carbide contamination during the melting process of the Czochralski silicon crystal growth. Crystal Research and Technology, 2015, 50, 458-463.	1.3	8
76	Relationship between Dislocation Density and Oxygen Concentration in Silicon Crystals during Directional Solidification. Crystals, 2018, 8, 244.	2.2	8
77	Reduction of carbon contamination during the melting process of Czochralski silicon crystal growth. Journal of Crystal Growth, 2017, 474, 3-7.	1.5	7
78	Relationship between carbon concentration and carrier lifetime in CZ-Si crystals. Journal of Crystal Growth, 2018, 486, 56-59.	1.5	7
79	Numerical analysis of continuous charge of lithium niobate in a double-crucible Czochralski system using the accelerated crucible rotation technique. Journal of Crystal Growth, 2004, 266, 109-116.	1.5	6
80	Isotope-concentration dependence of thermal conductivity of germanium investigated by molecular dynamics. Journal of Applied Physics, 2004, 95, 6200-6203.	2.5	6
81	Partly three-dimensional calculation of silicon Czochralski growth with a transverse magnetic field. Journal of Crystal Growth, 2007, 303, 135-140.	1.5	6
82	Development of carbon transport and modeling in Czochralski silicon crystal growth. Crystal Research and Technology, 2017, 52, 1600221.	1.3	6
83	Phase diagram of the Ag2SnS3â€“ZnS pseudobinary system for Ag2ZnSnS4 crystal growth. Journal of Crystal Growth, 2021, 555, 125967.	1.5	6
84	An in-situ X-ray topography observation of dislocations, crystalâ€“melt interface and melting of silicon. Microelectronic Engineering, 2001, 56, 143-146.	2.4	5
85	Molecular dynamics simulation of thermal conductivity of GaN/AlN quantum dot superlattices. Physica Status Solidi C: Current Topics in Solid State Physics, 2007, 4, 2289-2292.	0.8	5
86	Numerical Analysis of mc-Si Crystal Growth. Solid State Phenomena, 2009, 156-158, 193-198.	0.3	5
87	Transient global modeling for the pulling process of Czochralski silicon crystal growth. II. Investigation on segregation of oxygen and carbon. Journal of Crystal Growth, 2020, 532, 125404.	1.5	5
88	Transient global modeling for the pulling process of Czochralski silicon crystal growth. I. Principles, formulation, and implementation of the model. Journal of Crystal Growth, 2020, 532, 125405.	1.5	5
89	Active control of melt convection of silicon by electromagnetic force under cusp-shaped magnetic fields. Materials Science in Semiconductor Processing, 2002, 5, 341-345.	4.0	4
90	Numerical Analysis of the Dislocation Density in Multicrystalline Silicon for Solar Cells by the Vertical Bridgman Process. International Journal of Photoenergy, 2013, 2013, 1-8.	2.5	4

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91	Modeling grown-in dislocation multiplication on prismatic slip planes for GaN single crystals. Journal of Applied Physics, 2015, 117, 035701.	2.5	4
92	Firstâ€principles study of the surface phase diagrams of GaN(0001) and (000â¯1) under oxide vapor phase epitaxy growth conditions. Physica Status Solidi (B): Basic Research, 2017, 254, 1600706.	1.5	4
93	Effect of oxygen on dislocation multiplication in silicon crystals. Journal of Crystal Growth, 2018, 486, 45-49.	1.5	4
94	Numerical analysis of dopant concentration in 200Âmm (8Âinch) floating zone silicon. Journal of Crystal Growth, 2020, 545, 125752.	1.5	4
95	Numerical Analysis of Melt Flow and Interface Deflection during the Growth of Directional Solidified Multi-Crystalline Silicon Ingots of Three Different Dimension. Silicon, 2022, 14, 3049-3057.	3.3	4
96	Modeling of Fluid Dynamics in the Czochralski Growth of Semiconductor Crystals. , 2004, , 169-186.		3
97	Thermodynamic stability of In1â€“x â€“yGax Aly N on GaN and InN. Physica Status Solidi C: Current Topics in Solid State Physics, 2006, 3, 1700-1703.	0.8	3
98	Numerical investigation of crystal growth process of bulk Si and nitrides â€“ a review. Crystal Research and Technology, 2007, 42, 1185-1189.	1.3	3
99	Influence of compositional changes of source materials on AlN synthesis using Li-Al-N solvent. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, S336-S339.	0.8	3
100	Strain energy analysis of screw dislocations in 4H-SiC by molecular dynamics. Japanese Journal of Applied Physics, 2016, 55, 031301.	1.5	3
101	Do thermal donors reduce the lifetimes of Czochralski-grown silicon crystals?. Journal of Crystal Growth, 2018, 489, 1-4.	1.5	3
102	In-situ measurement of CO gas concentration in a Czochralski furnace of silicon crystals. Journal of Crystal Growth, 2019, 507, 154-156.	1.5	3
103	3D numerical study of the asymmetric phenomenon in 200Âmm floating zone silicon crystal growth. Journal of Crystal Growth, 2020, 532, 125403.	1.5	3
104	Dislocation Propagation in Si 300 mm Wafer during High Thermal Budget Process and Its Optimization. , 2020, , .		3
105	Analysis of the Effect of Cuspâ€Shaped Magnetic Fields on Heat, Mass, and Oxygen Transfer Using a Coupled 2D/3D Global Model. Crystal Research and Technology, 2022, 57, 2100092.	1.3	3
106	An investigation of thermal conductivity of silicon as a function of isotope concentration by molecular dynamics. Journal of Crystal Growth, 2004, 267, 452-452.	1.5	2
107	Crystallization of Silicon by a Directional Solidification Method. Advances in Materials Research, 2009, , 55-69.	0.2	2
108	Calculation of phase diagrams of the Li3N-Al system for AlN growth. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 1581-1584.	0.8	2

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109	Analysis of Growth Velocity of SiÐ¡ Growth by the Physical Vapor Transport Method. Materials Science Forum, 2012, 717-720, 25-28.	0.3	2
110	First-principles study of polar, nonpolar, and semipolar GaN surfaces during oxide vapor phase epitaxy growth. Japanese Journal of Applied Physics, 2018, 57, 115504.	1.5	2
111	3D Numerical Analysis of the Asymmetric Three-Phase Line of Floating Zone for Silicon Crystal Growth. Crystals, 2020, 10, 121.	2.2	2
112	Numerical Analysis of Impurities and Dislocations During Silicon Crystal Growth for Solar Cells. Lecture Notes in Physics, 2015, , 241-272.	0.7	2
113	Numerical Analysis of Phosphorus Concentration Distribution in a Silicon Crystal during Directional Solidification Process. Crystals, 2021, 11, 27.	2.2	2
114	Modeling of Magnetic Fields. AIP Conference Proceedings, 2007, , .	0.4	1
115	Numerical study of the relationship between growth condition and atomic arrangement of InGaN. Physica Status Solidi (B): Basic Research, 2007, 244, 1784-1788.	1.5	1
116	Modeling and simulation of Si crystal growth from melt. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, 645-652.	0.8	1
117	Gedanken experiment on point defects in unidirectional solidified single crystalline silicon with no dislocations. Journal of Crystal Growth, 2010, 312, 192-197.	1.5	1
118	Total pressureâ€controlled PVT SiC growth for polytype stability during using 2D nucleation theory. Crystal Research and Technology, 2016, 51, 344-348.	1.3	1
119	Recent Developments of Numerical Calculation in Crystal Growth of SiC. Journal of the Vacuum Society of Japan, 2017, 60, 313-320.	0.3	1
120	Numerical investigation of floating zone silicon using Halbach array magnets. Journal of Crystal Growth, 2020, 546, 125773.	1.5	1
121	Carbon monoxide concentrations in a Czochralski growth furnace. Journal of Crystal Growth, 2021, 558, 126015.	1.5	1
122	Numerical Analysis of Dislocation Density of SiC Crystals Tilted from [0001] Toward [12Â¯10]$[{1ar 210}]$ and [11Â¯00]$[{1ar 100}]$ Grown by Physical Vapor Transport. Crystal Research and Technology, 2022, 57, .	1.3	1
123	Effects of shape of an inner crucible on convection of lithium niobate melt in a double-crucible Czochralski process using the accelerated crucible rotation technique. Journal of Crystal Growth, 2004, 267, 574-574.	1.5	0
124	Silicon crystal growth from the melt: Analysis from atomic and macro scales. Crystal Research and Technology, 2005, 40, 307-312.	1.3	0
125	Possibility of AlN vapor phase epitaxy using Li₃N as a nitrogen source. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, S340.	0.8	0
126	Crystal growth of semiconductor bulk crystals. , 2010, , .		0

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127	Computer modeling of crystal growth of silicon for solar cells. Frontiers in Energy, 2011, 5, 305.	2.3	0
128	Numerical analysis of light elements transport in a unidirectional solidification furnace. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 659-661.	0.8	0
129	Control of extended defects in cast and seed cast Si ingots for photovoltaic application. Physica Status Solidi C: Current Topics in Solid State Physics, 2015, 12, 1094-1098.	0.8	0
130	Chemical beam epitaxy of GaAs 1-x N x using MMHy and DMHy precursors, modeled by ab initio study of GaAs(100) surfaces stability over As 2 , H 2 and N 2. Journal of Crystal Growth, 2017, 468, 557-561.	1.5	0
131	534 Development and Stress Analysis of 3D-Mandibular Model with Dental Implants. The Proceedings of the Bioengineering Conference Annual Meeting of BED/JSME, 2007, 2006.19, 410-411.	0.0	0
132	1801 Dynamic simulation of defects in silicon crystals for PVs and LSIs. The Proceedings of the Computational Mechanics Conference, 2010, 2010.23, 642-643.	0.0	0
133	Role of the Surface Nâ€“H Molecular Layer in High Quality In-RICH InGaN Growth by MOVPE. Journal of Chemical Engineering of Japan, 2014, 47, 615-619.	0.6	0
134	Carbon Impurity in Crystalline Silicon. , 2019, , 1-26.		0
135	Carbon Impurity in Crystalline Silicon. , 2019, , 437-462.		0
136	Oxygen and Nitrogen Transfer in Furnaces in Crystal Growth of Silicon by Czochralski and Directional Solidification Processes. Materials, 2022, 15, 1843.	2.9	0