Kentaro Kutsukake

List of Publications by Year
in descending order

87 papers	1,225 citations	394421 19 h-index	454955 30 g-index
88 all docs	88 docs citations	88 times ranked	613 citing authors

#	Article	IF	Citations
1	Effects of grain boundary structure and shape of the solidâ€“liquid interface on the growth direction of the grain boundaries in multicrystalline silicon. CrystEngComm, 2022, 24, 1948-1954.	2.6	4
2	Virtual experiments of Czochralski growth of silicon using machine learning: Influence of processing parameters on interstitial oxygen concentration. Journal of Crystal Growth, 2022, 584, 126580.	1.5	5
3	Data-Driven Optimization and Experimental Validation for the Lab-Scale Mono-Like Silicon Ingot Growth by Directional Solidification. ACS Omega, 2022, 7, 6665-6673.	3.5	10
4	Optimization of Flow Distribution by Topological Description and Machine Learning in Solution Growth of SiC. Advanced Theory and Simulations, 2022, 5, .	2.8	3
5	Study on electrical activity of grain boundaries in silicon through systematic control of structural parameters and characterization using a pretrained machine learning model. Journal of Applied Physics, 2022, 132, .	2.5	3
6	Segregation mechanism of arsenic dopants at grain boundaries in silicon. Science and Technology of Advanced Materials Methods, 2021, 1, 169-180.	1.3	3
7	Geometrical design of a crystal growth system guided by a machine learning algorithm. CrystEngComm, 2021, 23, 2695-2702.	2.6	20
8	(Invited) Application of Machine Learning for High-Performance Multicrystalline Materials. ECS Transactions, 2021, 102, 11-16.	0.5	0
9	Occurrence Prediction of Dislocation Regions in Photoluminescence Image of Multicrystalline Silicon Wafers Using Transfer Learning of Convolutional Neural Network. IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, 2021, E104.A, 857-865.	0.3	1
10	Direct prediction of electrical properties of grain boundaries from photoluminescence profiles using machine learning. Applied Physics Letters, 2021, 119, .	3.3	2
11	Application of Bayesian optimization for high-performance TiO /SiO /c-Si passivating contact. Solar Energy Materials and Solar Cells, 2021, 230, 111251.	6.2	7
12	Adaptive process control for crystal growth using machine learning for high-speed prediction: application to SiC solution growth. CrystEngComm, 2021, 23, 1982-1990.	2.6	22
13	Application of Bayesian optimization for improved passivation performance in TiO_x/SiO_y/c-Si heterostructure by hydrogen plasma treatment. Applied Physics Express, 2021, 14, 025503.	2.4	15
14	Origin of recombination activity of non-coherent Î£3{111} grain boundaries with a positive deviation in the tilt angle in cast-grown silicon ingots. Applied Physics Express, 2021, 14, 011002.	2.4	7
15	Determination of carrier recombination velocity at inclined grain boundaries in multicrystalline silicon through photoluminescence imaging and carrier simulation. Journal of Applied Physics, 2020, 128, 125103.	2.5	8
16	Adaptive Bayesian optimization for epitaxial growth of Si thin films under various constraints. Materials Today Communications, 2020, 25, 101538.	1.9	16
17	Transmission behavior of dislocations against Î£3 twin boundaries in Si. Journal of Applied Physics, 2020, 127, .	2.5	8
18	Generation of dislocation clusters at triple junctions of random angle grain boundaries during cast growth of silicon ingots. Applied Physics Express, 2020, 13, 105505.	2.4	8

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19	Real-time prediction of interstitial oxygen concentration in Czochralski silicon using machine learning. Applied Physics Express, 2020, 13, 125502.	2.4	15
20	Structural properties of triple junctions acting as dislocation sources in high-performance Si ingots. , 2020, , .		0
21	3D visualization and analysis of dislocation clusters in multicrystalline silicon ingot by approach of data science. Solar Energy Materials and Solar Cells, 2019, 189, 239-244.	6.2	15
22	Study of local structure at crystalline rubrene grain boundaries via scanning transmission X-ray microscopy. Organic Electronics, 2019, 74, 315-320.	2.6	2
23	Application of artificial neural network to optimize sensor positions for accurate monitoring: an example with thermocouples in a crystal growth furnace. Applied Physics Express, 2019, 12, 125503.	2.4	14
24	Dependence of substrate work function on the energy-level alignment at organicâ€“organic heterojunction interface. Japanese Journal of Applied Physics, 2019, 58, SBBG06.	1.5	3
25	Growth of Crystalline Silicon for Solar Cells: Mono-Like Method. , 2019, , 215-234.		1
26	Mechanical Properties of Cubicâ€BN(111) Bulk Single Crystal Evaluated by Nanoindentation. Physica Status Solidi (B): Basic Research, 2018, 255, 1700473.	1.5	6
27	Distribution of light-element impurities in Si crystals grown by seed-casting method. Japanese Journal of Applied Physics, 2018, 57, 08RB19.	1.5	1
28	Interaction of sodium atoms with stacking faults in silicon with different Fermi levels. Applied Physics Express, 2018, 11, 061303.	2.4	5
29	Application of weighted Voronoi diagrams to analyze nucleation sites of multicrystalline silicon ingots. Journal of Crystal Growth, 2018, 499, 62-66.	1.5	4
30	Insight into physical processes controlling the mechanical properties of the wurtzite group-III nitride family. Journal of Crystal Growth, 2018, 500, 23-27.	1.5	6
31	Growth of Crystalline Silicon for Solar Cells: Mono-Like Method. , 2018, , 1-20.		2
32	Impact of local atomic stress on oxygen segregation at tilt boundaries in silicon. Applied Physics Letters, 2017, 110, .	3.3	17
33	Nanoscopic analysis of oxygen segregation at tilt boundaries in silicon ingots using atom probe tomography combined with TEM and <i>ab initio</i> calculations. Journal of Microscopy, 2017, 268, 230-238.	1.8	13
34	Nanoindentation measurements of a highly oriented wurtzite-type boron nitride bulk crystal. Japanese Journal of Applied Physics, 2017, 56, 030301.	1.5	22
35	Recombination activity of nickel, copper, and oxygen atoms segregating at grain boundaries in mono-like silicon crystals. Applied Physics Letters, 2016, 109, .	3.3	24
36	Effect of grain boundary character of multicrystalline Si on external and internal (phosphorus) gettering of impurities. Progress in Photovoltaics: Research and Applications, 2016, 24, 1615-1625.	8.1	6

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37	Nanoscopic mechanism of Cu precipitation at small-angle tilt boundaries in Si. Physical Review B, 2015, 91, .	3.2	18
38	Three-dimensional evaluation of gettering ability for oxygen atoms at small-angle tilt boundaries in Czochralski-grown silicon crystals. Applied Physics Letters, 2015, 106, .	3.3	14
39	Characterization of silicon ingots: Mono-like versus high-performance multicrystalline. Japanese Journal of Applied Physics, 2015, 54, 08KD10.	1.5	14
40	Elastic properties of indium nitrides grown on sapphire substrates determined by nano-indentation: In comparison with other nitrides. AIP Advances, 2015, 5, .	1.3	12
41	Slip systems in wurtzite ZnO activated by Vickers indentation on <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si0011.gif" overflow="scroll"><mml:mo>{</mml:mo><mml:mn>2</mml:mn><mml:mover accent="true"><mml:mrow><mml:mn>1</mml:mn></mml:mrow><mml:mrow><mml:mo>Â¯</mml:mo></mml:mrow></mml:mover> accent="true"><mml:mrow><mml:mn>1</mml:mn></mml:mrow><mml:mrow><mml:mo>Â¯</mml:mo></mml:mrow></mml:mover> and <mml:math xmlns:mml="http://www.w3. Journal of Crystal Growth, 2014, 393, 119-122.	1.5	3
42	Mono-Like Silicon Growth Using Functional Grain Boundaries to Limit Area of Multicrystalline Grains. IEEE Journal of Photovoltaics, 2014, 4, 84-87.	2.5	48
43	Czochralski growth of heavily indium-doped Si crystals and co-doping effects of group-IV elements. Journal of Crystal Growth, 2014, 393, 45-48.	1.5	3
44	Czochralski growth of heavily tin-doped Si crystals. Journal of Crystal Growth, 2014, 395, 94-97.	1.5	2
45	Growth of Si single bulk crystals with low oxygen concentrations by the noncontact crucible method using silica crucibles without Si3N4 coating. Journal of Crystal Growth, 2013, 372, 121-128.	1.5	26
46	Interstitial oxygen behavior for thermal double donor formation in germanium: Infrared absorption studies. Journal of Applied Physics, 2013, 113, 073501.	2.5	5
47	Nanoindentation hardness and elastic modulus of AlGaN alloys. , 2013, , .		1
48	Growth of Si single bulk crystals inside Si melts by the noncontact crucible method using silica crucibles without coating Si<inf>3</inf>N<inf>4</inf> particles. , 2013, , .		0
49	Control of Grain Boundary Propagation in Mono-Like Si: Utilization of Functional Grain Boundaries. Applied Physics Express, 2013, 6, 025505.	2.4	50
50	Three-dimensional evaluation of gettering ability of Î£3{111} grain boundaries in silicon by atom probe tomography combined with transmission electron microscopy. Applied Physics Letters, 2013, 103, .	3.3	28
51	Dislocation structure in AlN films induced by in situ transmission electron microscope nanoindentation. Journal of Applied Physics, 2012, 112, 093526.	2.5	14
52	Growth of Heavily Indium Doped Si Crystals by Co-Doping of Neutral Impurity Carbon or Germanium. Key Engineering Materials, 2012, 508, 220-223.	0.4	2
53	Growth of multicrystalline Si ingots for solar cells using noncontact crucible method without touching the crucible wall. , 2012, , .		1
54	Growth of multicrystalline Si ingots using noncontact crucible method for reduction of stress. Journal of Crystal Growth, 2012, 344, 6-11.	1.5	42

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55	Modeling of incorporation of oxygen and carbon impurities into multicrystalline silicon ingot during one-directional growth. Journal of Crystal Growth, 2012, 352, 173-176.	1.5	16
56	Growth of high-quality multicrystalline Si ingots using noncontact crucible method. Journal of Crystal Growth, 2012, 355, 38-45.	1.5	34
57	Generation mechanism of dislocations and their clusters in multicrystalline silicon during two-dimensional growth. Journal of Applied Physics, 2011, 110, 083530.	2.5	23
58	Formation mechanism of twin boundaries during crystal growth of silicon. Scripta Materialia, 2011, 65, 556-559.	5.2	27
59	Arrangement of dendrite crystals grown along the bottom of Si ingots using the dendritic casting method by controlling thermal conductivity under crucibles. Journal of Crystal Growth, 2011, 319, 13-18.	1.5	46
60	Implementation of faceted dendrite growth on floating cast method to realize high-quality multicrsytalline Si ingot for solar cells. Journal of Applied Physics, 2011, 109, .	2.5	20
61	Generation mechanism of dislocations during directional solidification of multicrystalline silicon using artificially designed seed. Journal of Crystal Growth, 2010, 312, 897-901.	1.5	96
62	Pattern formation mechanism of a periodically faceted interface during crystallization ofSi. Journal of Crystal Growth, 2010, 312, 3670-3674.	1.5	13
63	Computational Investigation of Relationship between Shear Stress and Multicrystalline Structure in Silicon. Japanese Journal of Applied Physics, 2010, 49, 04DP01.	1.5	16
64	Relationship between grain boundary structures in Si multicrystals and generation of dislocations during crystal growth. Journal of Applied Physics, 2010, 107, .	2.5	46
65	Formation mechanism of twin boundaries in silicon multicrystals during crystal growth. , 2010, , .		0
66	Formation mechanism of a faceted interface:<i>In situ</i>observation of the Si(100) crystal-melt interface during crystal growth. Physical Review B, 2009, 80, .	3.2	52
67	Quantitative analysis of subgrain boundaries in Si multicrystals and their impact on electrical properties and solar cell performance. Journal of Applied Physics, 2009, 105, 044909.	2.5	27
68	Growth behavior of faceted Si crystals at grain boundary formation. Journal of Crystal Growth, 2009, 312, 19-23.	1.5	8
69	Microstructures of Si multicrystals and their impact on minority carrier diffusion length. Acta Materialia, 2009, 57, 3268-3276.	7.9	39
70	Fundamental Understanding of Subgrain Boundaries. Advances in Materials Research, 2009, , 83-95.	0.2	2
71	Influence of growth temperature and cooling rate on the growth of Si epitaxial layer by dropping-type liquid phase epitaxy from the pure Si melt. Journal of Crystal Growth, 2008, 310, 5248-5251.	1.5	3
72	Impact of Defect Density in Si Bulk Multicrystals on Gettering Effect of Impurities. Japanese Journal of Applied Physics, 2008, 47, 8790-8792.	1.5	11

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73	Structural Origin of a Cluster of Bright Spots in Reverse Bias Electroluminescence Image of Solar Cells Based on Si Multicrystals. Applied Physics Express, 2008, 1, 075001.	2.4	14
74	Control of strain status in SiGe thin film by epitaxial growth on Si with buried porous layer. Applied Physics Letters, 2007, 90, 031915.	3.3	3
75	Modification of local structures in multicrystals revealed by spatially resolved x-ray rocking curve analysis. Journal of Applied Physics, 2007, 102, 103504.	2.5	12
76	Modification of Local Structure and Its Influence on Electrical Activity of Near (310) Σ5 Grain Boundary in Bulk Silicon. Materials Transactions, 2007, 48, 143-147.	1.2	18
77	Influence of structural imperfection of Î£5 grain boundaries in bulk multicrystalline Si on their electrical activities. Journal of Applied Physics, 2007, 101, 063509.	2.5	20
78	Spontaneous Modification of Grain Boundary Configuration and its Application for Realization of Bulk Multicrystalline Si with Electrically Inactive Grain Boundaries. , 2006, , .		0
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80	Realization of Bulk Multicrystalline Silicon with Controlled Grain Boundaries by Utilizing Spontaneous Modification of Grain Boundary Configuration. Japanese Journal of Applied Physics, 2006, 45, 1734-1737.	1.5	15
81	Growth of SiGe-on-insulator and its application as a substrate for epitaxy of strained-Si layer. Journal of Crystal Growth, 2005, 275, e1203-e1207.	1.5	3
82	Growth of multicrystalline Si with controlled grain boundary configuration by the floating zone technique. Journal of Crystal Growth, 2005, 280, 419-424.	1.5	30
83	Floating Zone Growth of Si Bicrystals Using Seed Crystals with Artificially Designed Grain Boundary Configuration. Japanese Journal of Applied Physics, 2005, 44, L778-L780.	1.5	9
84	Fabrication of SiGe-on-insulator by rapid thermal annealing of Ge on Si-on-insulator substrate. Applied Surface Science, 2004, 224, 95-98.	6.1	10
85	On the origin of strain fluctuation in strained-Si grown on SiGe-on-insulator and SiGe virtual substrates. Applied Physics Letters, 2004, 85, 1335-1337.	3.3	21
86	Fabrication of SiGe-on-Insulator through Thermal Diffusion of Ge on Si-on-Insulator Substrate. Japanese Journal of Applied Physics, 2003, 42, L232-L234.	1.5	8
87	A Transfer Learningâ€Based Method for Facilitating theÂPrediction of Unsteady Crystal Growth. Advanced Theory and Simulations, 0, , 2200204.	2.8	0