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	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
2	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
3	Control of Grain Boundary Propagation in Mono-Like Si: Utilization of Functional Grain Boundaries. Applied Physics Express, 2013, 6, 025505.	2.4	50
4	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
5	Relationship between grain boundary structures in Si multicrystals and generation of dislocations during crystal growth. Journal of Applied Physics, 2010, 107, .	2.5	46
6	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
7	Growth of multicrystalline Si ingots using noncontact crucible method for reduction of stress. Journal of Crystal Growth, 2012, 344, 6-11.	1.5	42
8	Microstructures of Si multicrystals and their impact on minority carrier diffusion length. Acta Materialia, 2009, 57, 3268-3276.	7.9	39
9	Growth of high-quality multicrystalline Si ingots using noncontact crucible method. Journal of Crystal Growth, 2012, 355, 38-45.	1.5	34
10	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
11	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
12	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
13	Formation mechanism of twin boundaries during crystal growth of silicon. Scripta Materialia, 2011, 65, 556-559.	5.2	27
14	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
15	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
16	Generation mechanism of dislocations and their clusters in multicrystalline silicon during two-dimensional growth. Journal of Applied Physics, 2011, 110, 083530.	2.5	23
17	Nanoindentation measurements of a highly oriented wurtzite-type boron nitride bulk crystal. Japanese Journal of Applied Physics, 2017, 56, 030301.	1.5	22
18	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

#	Article	IF	Citations
19	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
20	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
21	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
22	Geometrical design of a crystal growth system guided by a machine learning algorithm. CrystEngComm, 2021, 23, 2695-2702.	2.6	20
23	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
24	Nanoscopic mechanism of Cu precipitation at small-angle tilt boundaries in Si. Physical Review B, 2015, 91, .	3.2	18
25	Impact of local atomic stress on oxygen segregation at tilt boundaries in silicon. Applied Physics Letters, 2017, 110, .	3.3	17
26	Computational Investigation of Relationship between Shear Stress and Multicrystalline Structure in Silicon. Japanese Journal of Applied Physics, 2010, 49, 04DP01.	1.5	16
27	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
28	Adaptive Bayesian optimization for epitaxial growth of Si thin films under various constraints. Materials Today Communications, 2020, 25, 101538.	1.9	16
29	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
30	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
31	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
32	Real-time prediction of interstitial oxygen concentration in Czochralski silicon using machine learning. Applied Physics Express, 2020, 13, 125502.	2.4	15
33	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
34	Dislocation structure in AlN films induced by in situ transmission electron microscope nanoindentation. Journal of Applied Physics, 2012, 112, 093526.	2.5	14
35	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
36	Characterization of silicon ingots: Mono-like versus high-performance multicrystalline. Japanese Journal of Applied Physics, 2015, 54, 08KD10.	1.5	14

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37	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
38	Pattern formation mechanism of a periodically faceted interface during crystallization ofSi. Journal of Crystal Growth, 2010, 312, 3670-3674.	1.5	13
39	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
40	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
41	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
42	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
43	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
44	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
45	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
46	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
47	Growth behavior of faceted Si crystals at grain boundary formation. Journal of Crystal Growth, 2009, 312, 19-23.	1.5	8
48	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
49	Transmission behavior of dislocations against Î£3 twin boundaries in Si. Journal of Applied Physics, 2020, 127, .	2.5	8
50	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
51	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
52	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
53	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
54	Mechanical Properties of Cubicâ€BN(111) Bulk Single Crystal Evaluated by Nanoindentation. Physica Status Solidi (B): Basic Research, 2018, 255, 1700473.	1.5	6

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55	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
56	Interstitial oxygen behavior for thermal double donor formation in germanium: Infrared absorption studies. Journal of Applied Physics, 2013, 113, 073501.	2.5	5
57	Interaction of sodium atoms with stacking faults in silicon with different Fermi levels. Applied Physics Express, 2018, 11, 061303.	2.4	5
58	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
59	Application of weighted Voronoi diagrams to analyze nucleation sites of multicrystalline silicon ingots. Journal of Crystal Growth, 2018, 499, 62-66.	1.5	4
60	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
61	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
62	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
63	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
64	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><m accent="true"><mml:mrow><mml:mn>1</mml:mn></mml:mrow><mml:mrow><mml:mo>Â¯</mml:mo></mml:mrow></mml:mover><m and <mml:math xmlns:mml="http://www.w3. Journal of Crystal Growth, 2014, 393, 119-122.	1.5	3
65	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
66	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
67	Segregation mechanism of arsenic dopants at grain boundaries in silicon. Science and Technology of Advanced Materials Methods, 2021, 1, 169-180.	1.3	3
68	Optimization of Flow Distribution by Topological Description and Machine Learning in Solution Growth of SiC. Advanced Theory and Simulations, 2022, 5, .	2.8	3
69	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
70	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
71	Czochralski growth of heavily tin-doped Si crystals. Journal of Crystal Growth, 2014, 395, 94-97.	1.5	2
72	Study of local structure at crystalline rubrene grain boundaries via scanning transmission X-ray microscopy. Organic Electronics, 2019, 74, 315-320.	2.6	2

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73	Direct prediction of electrical properties of grain boundaries from photoluminescence profiles using machine learning. Applied Physics Letters, 2021, 119, .	3.3	2
74	Fundamental Understanding of Subgrain Boundaries. Advances in Materials Research, 2009, , 83-95.	0.2	2
75	Growth of Crystalline Silicon for Solar Cells: Mono-Like Method. , 2018, , 1-20.		2
76	Growth of multicrystalline Si ingots for solar cells using noncontact crucible method without touching the crucible wall. , 2012, , .		1
77	Nanoindentation hardness and elastic modulus of AlGaN alloys. , 2013, , .		1
78	Distribution of light-element impurities in Si crystals grown by seed-casting method. Japanese Journal of Applied Physics, 2018, 57, 08RB19.	1.5	1
79	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
80	Growth of Crystalline Silicon for Solar Cells: Mono-Like Method. , 2019, , 215-234.		1
81	Spontaneous Modification of Grain Boundary Configuration and its Application for Realization of Bulk Multicrystalline Si with Electrically Inactive Grain Boundaries. , 2006, , .		0
82	ã,·ãƒªã,³ãƒ³ãƒãƒ«ã,¯åšçµæ™¶ã®ç²’ç•Œå¶å¾¡ã«å'ã'ã¦. Materia Japan, 2006, 45, 720-724.	0.1	0
83	Formation mechanism of twin boundaries in silicon multicrystals during crystal growth. , 2010, , .		0
84	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
85	(Invited) Application of Machine Learning for High-Performance Multicrystalline Materials. ECS Transactions, 2021, 102, 11-16.	0.5	0
86	Structural properties of triple junctions acting as dislocation sources in high-performance Si ingots. , 2020, , .		0
87	A Transfer Learningâ€Based Method for Facilitating theÂPrediction of Unsteady Crystal Growth. Advanced Theory and Simulations, 0, , 2200204.	2.8	0