Hitoshi Sai

List of Publications by Citations

101 papers	3,075 citations	31 h-index	54 g-index
122 ext. papers	3,465 ext. citations	3.6 avg, IF	5.27 L-index

#	Paper	IF	Citations
101	100 nm period silicon antireflection structures fabricated using a porous alumina membrane mask. *Applied Physics Letters*, **2001**, 78, 142-143	3.4	221
100	Light trapping effect of submicron surface textures in crystalline Si solar cells. *Progress in Photovoltaics: Research and Applications*, **2007**, 15, 415-423	6.8	165
99	High-temperature resistive surface grating for spectral control of thermal radiation. *Applied Physics Letters*, **2003**, 82, 1685-1687	3.4	155
98	Thermophotovoltaic generation with selective radiators based on tungsten surface gratings. *Applied Physics Letters*, **2004**, 85, 3399-3401	3.4	133
97	Antireflective subwavelength structures on crystalline Si fabricated using directly formed anodic porous alumina masks. *Applied Physics Letters*, **2006**, 88, 201116	3.4	129
96	Enhancement of light trapping in thin-film hydrogenated microcrystalline Si solar cells using back reflectors with self-ordered dimple pattern. *Applied Physics Letters*, **2008**, 93, 143501	3.4	108
95	Impact of front and rear texture of thin-film microcrystalline silicon solar cells on their light trapping properties. *Journal of Applied Physics*, **2010**, 108, 044505	2.5	99
94	Relationship between the cell thickness and the optimum period of textured back reflectors in thin-film microcrystalline silicon solar cells. *Applied Physics Letters*, **2013**, 102, 053509	3.4	98
93	High-efficiency amorphous silicon solar cells: Impact of deposition rate on metastability. *Applied Physics Letters*, **2015**, 106, 053901	3.4	81
92	Wide-Angle Antireflection Effect of Subwavelength Structures for Solar Cells. *Japanese Journal of Applied Physics*, **2007**, 46, 3333-3336	1.4	78
91	Triple-junction thin-film silicon solar cell fabricated on periodically textured substrate with a stabilized efficiency of 13.6%. *Applied Physics Letters*, **2015**, 106, 213902	3.4	77
90	Solar selective absorbers based on two-dimensional W surface gratings with submicron periods for high-temperature photothermal conversion. *Solar Energy Materials and Solar Cells*, **2003**, 79, 35-49	6.4	74
89	Effect of self-orderly textured back reflectors on light trapping in thin-film microcrystalline silicon solar cells. *Journal of Applied Physics*, **2009**, 105, 094511	2.5	73
88	Flattened light-scattering substrate in thin film silicon solar cells for improved infrared response. *Applied Physics Letters*, **2011**, 98, 113502	3.4	70
87	Tuning of the thermal radiation spectrum in the near-infrared region by metallic surface microstructures. *Journal of Micromechanics and Microengineering*, **2005**, 15, S243-S249	2	67
86	Potential of thin-film silicon solar cells by using high haze TCO superstrates. *Thin Solid Films*, **2010**, 518, 3054-3058	2.2	66
85	Spectral control of thermal emission by periodic microstructured surfaces in the near-infrared region. *Journal of the Optical Society of America A: Optics and Image Science, and Vision*, **2001**, 18, 1471-6	1.8	63

84	11.0%-Efficient Thin-Film Microcrystalline Silicon Solar Cells With Honeycomb Textured Substrates. *IEEE Journal of Photovoltaics*, **2014**, 4, 1349-1353	3.7	62
83	Back surface reflectors with periodic textures fabricated by self-ordering process for light trapping in thin-film microcrystalline silicon solar cells. *Solar Energy Materials and Solar Cells*, **2009**, 93, 1087-1090	6.4	60
82	High-efficiency microcrystalline silicon solar cells on honeycomb textured substrates grown with high-rate VHF plasma-enhanced chemical vapor deposition. *Japanese Journal of Applied Physics*, **2015**, 54, 08KB05	1.4	59
81	High-efficiency thin-film silicon solar cells with improved light-soaking stability. *Progress in Photovoltaics: Research and Applications*, **2013**, 21, 1363-1369	6.8	59
80	Directional solidification of polycrystalline silicon ingots by successive relaxation of supercooling method. *Journal of Crystal Growth*, **2007**, 308, 5-9	1.6	56
79	Photocurrent enhancement in thin-film silicon solar cells by combination of anti-reflective sub-wavelength structures and light-trapping textures. *Progress in Photovoltaics: Research and Applications*, **2015**, 23, 1572-1580	6.8	47
78	Microcrystalline Silicon Solar Cells with 10.5% Efficiency Realized by Improved Photon Absorption via Periodic Textures and Highly Transparent Conductive Oxide. *Applied Physics Express*, **2013**, 6, 104101	2.4	47
77	Numerical study on spectral properties of tungsten one-dimensional surface-relief gratings for spectrally selective devices. *Journal of the Optical Society of America A: Optics and Image Science, and Vision*, **2005**, 22, 1805-13	1.8	46
76	Stabilized 14.0%-efficient triple-junction thin-film silicon solar cell. *Applied Physics Letters*, **2016**, 109, 183506	3.4	46
75	High-efficiency thin-film silicon solar cells realized by integrating stable a-Si:H absorbers into improved device design. *Japanese Journal of Applied Physics*, **2015**, 54, 08KB10	1.4	43
74	Mie scattering enhanced near-infrared light response of thin-film silicon solar cells. *Applied Physics Letters*, **2010**, 97, 063507	3.4	38
73	Application of hydrogen-doped In2O3 transparent conductive oxide to thin-film microcrystalline Si solar cells. *Thin Solid Films*, **2010**, 518, 2930-2933	2.2	38
72	Enhanced photocurrent and conversion efficiency in thin-film microcrystalline silicon solar cells using periodically textured back reflectors with hexagonal dimple arrays. *Applied Physics Letters*, **2012**, 101, 173901	3.4	37
71	Selective Emission of Al2O3/Er3Al5O12Eutectic Composite for Thermophotovoltaic Generation of Electricity. *Japanese Journal of Applied Physics*, **2000**, 39, 1957-1961	1.4	35
70	Extraordinary Strong Band-Edge Absorption in Distorted Chalcogenide Perovskites. *Solar Rrl*, **2020**, 4, 1900555	7.1	31
69	Full-wave optoelectrical modeling of optimized flattened light-scattering substrate for high efficiency thin-film silicon solar cells. *Progress in Photovoltaics: Research and Applications*, **2014**, 22, 671-689	6.8	29
68	Passivation property of ultrathin SiOx:H / a-Si:H stack layers for solar cell applications. *Solar Energy Materials and Solar Cells*, **2018**, 185, 8-15	6.4	26
67	Potential of very thin and high-efficiency silicon heterojunction solar cells. *Progress in Photovoltaics: Research and Applications*, **2019**, 27, 1061-1070	6.8	26

66	Light trapping effect of patterned back surface reflectors in substrate-type single and tandem junction thin-film silicon solar cells. *Solar Energy Materials and Solar Cells*, **2011**, 95, 131-133	6.4	26
65	SPECTRALLY SELECTIVE THERMAL RADIATORS AND ABSORBERS WITH PERIODIC MICROSTRUCTURED SURFACE FOR HIGH-TEMPERATURE APPLICATIONS. *Microscale Thermophysical Engineering*, **2003**, 7, 101-115		26
64	III-V//Si multijunction solar cells with 30% efficiency using smart stack technology with Pd nanoparticle array. *Progress in Photovoltaics: Research and Applications*, **2020**, 28, 16-24	6.8	26
63	Thin-film microcrystalline silicon solar cells: 11.9% efficiency and beyond. *Applied Physics Express*, **2018**, 11, 022301	2.4	25
62	Present status and future of crystalline silicon solar cells in Japan. *Solar Energy*, **2006**, 80, 104-110	6.8	25
61	On the interplay of cell thickness and optimum period of silicon thin-film solar cells: light trapping and plasmonic losses. *Progress in Photovoltaics: Research and Applications*, **2016**, 24, 379-388	6.8	24
60	Progress and limitations of thin-film silicon solar cells. *Solar Energy*, **2018**, 170, 486-498	6.8	23
59	Study on Iron Distribution and Electrical Activities at Grain Boundaries in Polycrystalline Silicon Substrate for Solar Cells. *Japanese Journal of Applied Physics*, **2006**, 45, 6153-6156	1.4	22
58	Impact of intrinsic amorphous silicon bilayers in silicon heterojunction solar cells. *Journal of Applied Physics*, **2018**, 124, 103102	2.5	22
57	Influences of deposition temperature on characteristics of B-doped ZnO films deposited by metal□rganic chemical vapor deposition. *Thin Solid Films*, **2014**, 559, 83-87	2.2	21
56	Investigation of Textured Back Reflectors With Periodic Honeycomb Patterns in Thin-Film Silicon Solar Cells for Improved Photovoltaic Performance. *IEEE Journal of Photovoltaics*, **2013**, 3, 5-10	3.7	18
55	On the interplay of interface morphology and microstructure of high-efficiency microcrystalline silicon solar cells. *Solar Energy Materials and Solar Cells*, **2016**, 151, 81-88	6.4	18
54	Impact of silicon wafer thickness on photovoltaic performance of crystalline silicon heterojunction solar cells. *Japanese Journal of Applied Physics*, **2018**, 57, 08RB10	1.4	15
53	Crystalline Si Heterojunction Solar Cells with the Double Heterostructure of Hydrogenated Amorphous Silicon Oxide. *Japanese Journal of Applied Physics*, **2009**, 48, 064506	1.4	13
52	Enhanced efficiency of ultrathin (~500 nm)-film microcrystalline silicon photonic crystal solar cells. *Applied Physics Express*, **2017**, 10, 012302	2.4	10
51	Key Points in the Latest Developments of High-Efficiency Thin-Film Silicon Solar Cells. *Physica Status Solidi (A) Applications and Materials Science*, **2017**, 214, 1700544	1.6	10
50	Honeycomb micro-textures for light trapping in multi-crystalline silicon thin-film solar cells. *Optics Express*, **2018**, 26, A498-A507	3.3	10
49	In2O3:H transparent conductive oxide films with high mobility and near infrared transparency for optoelectronic applications. *Surface Engineering*, **2012**, 28, 102-107	2.6	10

48	Proton-induced photoconductivity increment and the thermal stability of a-Si:H thin film. *Journal of Non-Crystalline Solids*, **2010**, 356, 2114-2119	3.9	9
47	Solar thermophotovoltaic using Al/sub 2/O/sub 3//Er/sub 3/Al/sub 5/O/sub 12/ eutectic composite selective emitter		9
46	Atomic-Layer-Deposited TiO Nanolayers Function as Efficient Hole-Selective Passivating Contacts in Silicon Solar Cells. *ACS Applied Materials & Interfaces*, **2020**, 12, 49777-49785	9.5	9
45	Intrinsic Amorphous Silicon Bilayers for Effective Surface Passivation in Silicon Heterojunction Solar Cells: A Comparative Study of Interfacial Layers. *Physica Status Solidi (A) Applications and Materials Science*, **2021**, 218, 2000743	1.6	9
44	Textured surface structures formed using new techniques on transparent conducting Al-doped zinc oxide films prepared by magnetron sputtering. *Thin Solid Films*, **2016**, 614, 56-61	2.2	9
43	Plasmonic Color Filters Integrated on a Photodiode Array. *Electronics and Communications in Japan*, **2018**, 101, 95-104	0.4	8
42	Effect of Front TCO Layer on Properties of Substrate-Type Thin-Film Microcrystalline Silicon Solar Cells. *IEEE Journal of Photovoltaics*, **2015**, 5, 1528-1533	3.7	8
41	Amorphous-Silicon-Based Thin-Film Solar Cells Exhibiting Low Light-Induced Degradation. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB04	1.4	7
40	Transfer-printed silver nanodisks for plasmonic light trapping in hydrogenated microcrystalline silicon solar cells. *Applied Physics Express*, **2014**, 7, 112302	2.4	6
39	Temperature influence on performance degradation of hydrogenated amorphous silicon solar cells irradiated with protons. *Progress in Photovoltaics: Research and Applications*, **2013**, 21, 1499-1506	6.8	6
38	Amorphous-Silicon-Based Thin-Film Solar Cells Exhibiting Low Light-Induced Degradation. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB04	1.4	6
37	Bilayer contacts composed of amorphous and solid-phase crystallized transparent conducting oxides for solar cells. *Japanese Journal of Applied Physics*, **2014**, 53, 05FA08	1.4	5
36	Electric properties of undoped hydrogenated amorphous silicon semiconductors irradiated with self-ions. *Nuclear Instruments & Methods in Physics Research B*, **2012**, 285, 107-111	1.2	5
35	Anomalous enhancement in radiation induced conductivity of hydrogenated amorphous silicon semiconductors. *Nuclear Instruments & Methods in Physics Research B*, **2012**, 286, 29-34	1.2	5
34	Light Management Using Periodic Textures for Enhancing Photocurrent and Conversion Efficiency in Thin-Film Silicon Solar Cells. *Materials Research Society Symposia Proceedings*, **2013**, 1536, 3-15		5
33	**2011**,		5
32	Thermophotovoltaic Generation with Microstructured Tungsten Selective Emitters. *AIP Conference Proceedings*, **2004**,	0	5
31	Nanocrystalline-silicon hole contact layers enabling efficiency improvement of silicon heterojunction solar cells: Impact of nanostructure evolution on solar cell performance. *Progress in Photovoltaics: Research and Applications*, **2021**, 29, 344-356	6.8	5

30	The sputter deposition of broadband transparent and highly conductive cerium and hydrogen co-doped indium oxide and its transfer to silicon heterojunction solar cells. *Progress in Photovoltaics: Research and Applications*, **2021**, 29, 835	6.8	5
29	Light absorption enhancement in thin-film GaAs solar cells with flattened light scattering substrates. *Journal of Applied Physics*, **2017**, 122, 123103	2.5	4
28	Temporal electric conductivity variations of hydrogenated amorphous silicon due to high energy protons. *Journal of Non-Crystalline Solids*, **2012**, 358, 2039-2043	3.9	4
27	Light Trapping by Ag Nanoparticles Chemically Assembled inside Thin-Film Hydrogenated Microcrystalline Si Solar Cells. *Japanese Journal of Applied Physics*, **2012**, 51, 042302	1.4	4
26	Flattened Light-Scattering Substrate and Its Application to Thin-Film Silicon Solar Cells. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB07	1.4	4
25	Very thin crystalline silicon cells: A way to improve the photovoltaic performance at elevated temperatures. *Progress in Photovoltaics: Research and Applications*, **2021**, 29, 1093-1104	6.8	4
24	Tiling of Solar Cell Surfaces: Influence on Photon Management and Microstructure. *Advanced Materials Interfaces*, **2018**, 5, 1700814	4.6	4
23	Very Thin (56 μm) Silicon Heterojunction Solar Cells with an Efficiency of 23.3% and an Open-Circuit Voltage of 754 mV. *Solar Rrl*,2100634	7.1	4
22	Role of the Fermi level in the formation of electronic band-tails and mid-gap states of hydrogenated amorphous silicon in thin-film solar cells. *Journal of Applied Physics*, **2017**, 122, 093101	2.5	3
21	Temporal Donor Generation in Undoped Hydrogenated Amorphous Silicon Induced by Swift Proton Bombardment. *Applied Physics Express*, **2011**, 4, 061401	2.4	3
20	Light Trapping by Ag Nanoparticles Chemically Assembled inside Thin-Film Hydrogenated Microcrystalline Si Solar Cells. *Japanese Journal of Applied Physics*, **2012**, 51, 042302	1.4	3
19	Numerical Analysis and Demonstration of Submicron Antireflective Textures for Crystalline Silicon Solar Cells **2006**,		3
18	Integration of Si Heterojunction Solar Cells with III-V Solar Cells by the Pd Nanoparticle Array-Mediated "Smart Stack" Approach.. *ACS Applied Materials & Interfaces*, **2022**,	9.5	3
17	Direct evidence for pn junction without degradation in crystalline Si photovoltaic modules under hygrothermal stresses **2016**,		3
16	Improved metastability and performance of amorphous silicon solar cells. *Materials Research Society Symposia Proceedings*, **2014**, 1666, 7		2
15	Flattened Light-Scattering Substrate and Its Application to Thin-Film Silicon Solar Cells. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB07	1.4	2
14	Impact of carrier doping on electrical properties of laser-induced liquid-phase-crystallized silicon thin films for solar cell application. *Japanese Journal of Applied Physics*, **2018**, 57, 021302	1.4	1
13	Silicon Thin-Film Solar Cells Approaching the Geometric Light-Trapping Limit: Surface Texture Inspired by Self-Assembly Processes. *ACS Photonics*, **2018**, 5, 2799-2806	6.3	1

List of Publications

12	Impact of front and rear-side texturing on light trapping in thin-film silicon solar cells **2010**,		1
11	Light Trapping in Thin-Film μc-Si:H Solar Cells Using Self-Ordered 2D Grating Reflector. *Materials Research Society Symposia Proceedings*, **2009**, 1153, 1		1
10	High-Temperature Solar Selective Absorber Material Using Surface Microcavity Structures **2011**,		1
9	Growth and Characterization of Multicrystalline Silicon Ingots Grown by Directional Solidification Technique **2006**,		1
8	Fabrication of protonic conductors with nano-structured surface by porous alumina membrane mask. *Solid State Ionics*, **2002**, 154-155, 693-697	3.3	1
7	Surface microstructured selective emitters for TPV systems		1
6	Crystallite distribution analysis based on hydrogen content in thin-film nanocrystalline silicon solar cells by atom probe tomography. *Applied Physics Express*, **2021**, 14, 016501	2.4	1
5	Integration of Light Trapping Silver Nanostructures in Hydrogenated Microcrystalline Silicon Solar Cells by Transfer Printing. *Journal of Visualized Experiments*, **2015**, e53276	1.6	
4	Spectral Control of Thermal Radiation by Metallic Surface Relief Gratings. *Materials Research Society Symposia Proceedings*, **2009**, 1162, 1		
3	Light Trapping in α-Si:H Thin-film Solar Cells by Back Surface Reflector with Grating Structure Fabricated by Self-ordering Process. *Materials Research Society Symposia Proceedings*, **2008**, 1101, 1		
2	407 Thermophotovoltaic power generation system equipped with rare-earth selective thermal emission. *The Proceedings of Conference of Tohoku Branch*, **2001**, 2001.36, 136-137	0	
1	201 Spectral control of thermal radiation of W with periodic surface microstructures for TPV applications. *The Proceedings of Conference of Tohoku Branch*, **2001**, 2001.36, 48-49	0	