Takuya Matsui

List of Publications by Citations

82 papers	2,739 citations	27 h-index	51 g-index
95 ext. papers	3,068 ext. citations	3.5 avg, IF	4.95 L-index

#	Paper	IF	Citations
82	Theoretical analysis of the effect of conduction band offset of window/CIS layers on performance of CIS solar cells using device simulation. *Solar Energy Materials and Solar Cells*, **2001**, 67, 83-88	6.4	468
81	Photocatalytic generation of hydrogen by core-shell WO/BiVO nanorods with ultimate water splitting efficiency. *Scientific Reports*, **2015**, 5, 11141	4.9	380
80	High-rate deposition of microcrystalline silicon p-i-n solar cells in the high pressure depletion regime. *Journal of Applied Physics*, **2008**, 104, 034508	2.5	91
79	High-efficiency amorphous silicon solar cells: Impact of deposition rate on metastability. *Applied Physics Letters*, **2015**, 106, 053901	3.4	81
78	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
77	Improvement in quantum efficiency of thin film Si solar cells due to the suppression of optical reflectance at transparent conducting oxide/Si interface by TiO2/ZnO antireflection coating. *Applied Physics Letters*, **2006**, 88, 183508	3.4	72
76	Origin of the Improved Performance of High-Deposition-Rate Microcrystalline Silicon Solar Cells by High-Pressure Glow Discharge. *Japanese Journal of Applied Physics*, **2003**, 42, L901-L903	1.4	70
75	Potential of thin-film silicon solar cells by using high haze TCO superstrates. *Thin Solid Films*, **2010**, 518, 3054-3058	2.2	66
74	Correlation between Microstructure and Photovoltaic Performance of Polycrystalline Silicon Thin Film Solar Cells. *Japanese Journal of Applied Physics*, **2002**, 41, 20-27	1.4	64
73	11.0%-Efficient Thin-Film Microcrystalline Silicon Solar Cells With Honeycomb Textured Substrates. *IEEE Journal of Photovoltaics*, **2014**, 4, 1349-1353	3.7	62
72	Infrared analysis of the bulk silicon-hydrogen bonds as an optimization tool for high-rate deposition of microcrystalline silicon solar cells. *Applied Physics Letters*, **2008**, 92, 033506	3.4	62
71	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
70	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
69	Influence of alloy composition on carrier transport and solar cell properties of hydrogenated microcrystalline silicon-germanium thin films. *Applied Physics Letters*, **2006**, 89, 142115	3.4	59
68	High-rate microcrystalline silicon deposition for p/i junction solar cells. *Solar Energy Materials and Solar Cells*, **2006**, 90, 3199-3204	6.4	56
67	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
66	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

65	Influence of substrate texture on microstructure and photovoltaic performances of thin film polycrystalline silicon solar cells. *Journal of Non-Crystalline Solids*, **2002**, 299-302, 1152-1156	3.9	47
64	Stabilized 14.0%-efficient triple-junction thin-film silicon solar cell. *Applied Physics Letters*, **2016**, 109, 183506	3.4	46
63	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
62	Thin film solar cells incorporating microcrystalline Si1−xGex as efficient infrared absorber: an application to double junction tandem solar cells. *Progress in Photovoltaics: Research and Applications*, **2010**, 18, 48-53	6.8	40
61	Key issues for fabrication of high quality amorphous and microcrystalline silicon solar cells. *Thin Solid Films*, **2006**, 501, 243-246	2.2	38
60	Microcrystalline silicon–germanium alloys for solar cell application: Growth and material properties. *Journal of Non-Crystalline Solids*, **2006**, 352, 1255-1258	3.9	34
59	Thin film solar cells based on microcrystalline silicon–germanium narrow-gap absorbers. *Solar Energy Materials and Solar Cells*, **2009**, 93, 1100-1102	6.4	31
58	Highly stabilized hydrogenated amorphous silicon solar cells fabricated by triode-plasma CVD. *Thin Solid Films*, **2006**, 502, 306-310	2.2	29
57	Microstructural dependence of electron and hole transport in low-temperature-grown polycrystalline-silicon thin-film solar cells. *Applied Physics Letters*, **2002**, 81, 4751-4753	3.4	28
56	Microcrystalline Si1-xGexSolar Cells Exhibiting Enhanced Infrared Response with Reduced Absorber Thickness. *Applied Physics Express*, **2008**, 1, 031501	2.4	27
55	Potential of very thin and high-efficiency silicon heterojunction solar cells. *Progress in Photovoltaics: Research and Applications*, **2019**, 27, 1061-1070	6.8	26
54	Thin-film microcrystalline silicon solar cells: 11.9% efficiency and beyond. *Applied Physics Express*, **2018**, 11, 022301	2.4	25
53	Progress and limitations of thin-film silicon solar cells. *Solar Energy*, **2018**, 170, 486-498	6.8	23
52	The Nature and the Kinetics of Light-Induced Defect Creation in Hydrogenated Amorphous Silicon Films and Solar Cells. *IEEE Journal of Photovoltaics*, **2014**, 4, 1331-1336	3.7	23
51	Advanced materials processing for high-efficiency thin-film silicon solar cells. *Solar Energy Materials and Solar Cells*, **2013**, 119, 156-162	6.4	23
50	Tandem photovoltaic–photoelectrochemical GaAs/InGaAsP/WO3/BiVO4device for solar hydrogen generation. *Japanese Journal of Applied Physics*, **2016**, 55, 04ES01	1.4	23
49	Electron spin resonance study of hydrogenated microcrystalline silicon–germanium alloy thin films. *Journal of Non-Crystalline Solids*, **2008**, 354, 2365-2368	3.9	22
48	Impact of intrinsic amorphous silicon bilayers in silicon heterojunction solar cells. *Journal of Applied Physics*, **2018**, 124, 103102	2.5	22

47	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
46	Investigation of atomic-layer-deposited TiOx as selective electron and hole contacts to crystalline silicon. *Energy Procedia*, **2017**, 124, 628-634	2.3	20
45	Effect of illumination-induced space charge on photocarrier transport in hydrogenated microcrystalline Si1□Gex p-i-n solar cells. *Applied Physics Letters*, **2007**, 91, 102111	3.4	20
44	Defect Reduction in Polycrystalline Silicon Thin Films by Heat Treatment with High-Pressure H2O Vapor. *Japanese Journal of Applied Physics*, **2007**, 46, 1286-1289	1.4	18
43	Photovoltaic Action in Polyaniline/n-GaN Schottky Diodes. *Applied Physics Express*, **2009**, 2, 092201	2.4	17
42	Doping properties of boron-doped microcrystalline silicon from B2H6 and BF3: material properties and solar cell performance. *Journal of Non-Crystalline Solids*, **2004**, 338-340, 646-650	3.9	17
41	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
40	Carrier collection characteristics of microcrystalline silicon□ermanium pi□ junction solar cells. *Journal of Non-Crystalline Solids*, **2008**, 354, 2468-2471	3.9	15
39	Formation of Low-Defect-Concentration Polycrystalline Silicon Films by Thermal Plasma Jet Crystallization Technique. *Japanese Journal of Applied Physics*, **2008**, 47, 6949-6952	1.4	15
38	Thin Film Solar Cells Prepared on Low Thermal Budget Polycrystalline Silicon Seed Layers. *Japanese Journal of Applied Physics*, **2010**, 49, 112301	1.4	12
37	2D-numerical analysis and optimum design of thin film silicon solar cells. *Solar Energy Materials and Solar Cells*, **2001**, 65, 87-93	6.4	12
36	Origin of the tunable carrier selectivity of atomic-layer-deposited TiOx nanolayers in crystalline silicon solar cells. *Solar Energy Materials and Solar Cells*, **2020**, 209, 110461	6.4	11
35	Effect of oxygen doping in microcrystalline SiGe p-i-n solar cells. *Journal of Applied Physics*, **2014**, 116, 053701	2.5	11
34	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
33	Honeycomb micro-textures for light trapping in multi-crystalline silicon thin-film solar cells. *Optics Express*, **2018**, 26, A498-A507	3.3	10
32	Microcrystalline silicon□ermanium thin films prepared by the chemical transport process using hydrogen radicals. *Journal of Non-Crystalline Solids*, **2008**, 354, 2109-2112	3.9	10
31	Carrier Transport in Polycrystalline Silicon Photovoltaic Layer on Highly Textured Substrate. *Japanese Journal of Applied Physics*, **2003**, 42, 6753-6758	1.4	10
30	Analysis of bulk and interface defects in hydrogenated amorphous silicon solar cells by Fourier transform photocurrent spectroscopy. *Journal of Applied Physics*, **2015**, 118, 184506	2.5	9

29	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
28	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
27	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
26	Roles of hydrogen atoms in p-type Poly-Si/SiOx passivation layer for crystalline silicon solar cell applications. *Japanese Journal of Applied Physics*, **2019**, 58, 050915	1.4	7
25	Amorphous-Silicon-Based Thin-Film Solar Cells Exhibiting Low Light-Induced Degradation. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB04	1.4	7
24	Enhanced infrared transmission of GZO film by rapid thermal annealing for Si thin film solar cells. *Progress in Photovoltaics: Research and Applications*, **2012**, 20, 111-116	6.8	6
23	Amorphous-Silicon-Based Thin-Film Solar Cells Exhibiting Low Light-Induced Degradation. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB04	1.4	6
22	High-Rate Plasma Process for Microcrystalline Silicon: Over 9% Efficiency Single Junction Solar Cells. *Materials Research Society Symposia Proceedings*, **2004**, 808, 395		6
21	High-Efficiency Microcrystalline Silicon and Microcrystalline Silicon-Germanium Alloy Solar Cells. *Materials Research Society Symposia Proceedings*, **2011**, 1321, 21		5
20	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
19	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
18	Application of microcrystalline Si1−xGex infrared absorbers in triple junction solar cells **2010**,		4
17	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
16	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
15	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
14	Highly-transparent ZnO:Ga through rapid thermal annealing for low-bandgap solar cell application **2009**,		3
13	Correlation between Microstructure and Electronic Property of Solar-Grade Poly-Si Thin-Films Deposited on Textured Substrates. *Solid State Phenomena*, **2003**, 93, 115-120	0.4	3
12	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

11	Hydrogen passivation effect on p-type poly-Si/SiOx stack for crystalline silicon solar cells **2019**,		2
10	Improved metastability and performance of amorphous silicon solar cells. *Materials Research Society Symposia Proceedings*, **2014**, 1666, 7		2
9	Compensation of Native Defect Acceptors in Microcrystalline Ge and Si$_{1-x}$Ge$_{x}$ Thin Films by Oxygen Incorporation: Electrical Properties and Solar Cell Performance. *Japanese Journal of Applied Physics*, **2012**, 51, 091302	1.4	2
8	Crucial processing steps for microcrystalline silicon bottom cells		2
7	Compensation of Native Defect Acceptors in Microcrystalline Ge and Si1-xGexThin Films by Oxygen Incorporation: Electrical Properties and Solar Cell Performance. *Japanese Journal of Applied Physics*, **2012**, 51, 091302	1.4	2
6	Analysis of Optical and Recombination Losses in Solar Cells. *Springer Series in Optical Sciences*, **2018**, 29-82	2.5	2
5	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
4	Measuring the Electronic Properties of Poly-Si Thin Film Solar Cells Deposited on Textured Substrate **2006**,		1
3	Carrier Transport in Microcrystalline Silicon-Germanium Alloy Films and Solar Cells **2006**,		1
2	Improved Stability of Hydrogenated Amorphous Silicon Solar Cells Fabricated by Triode-Plasma CVD. *Materials Research Society Symposia Proceedings*, **2005**, 862, 1111		1
1	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