Hiroyuki Fujiwara

List of Publications by Year in Descending Order

114 papers	4,985 citations	31 h-index	69 g-index
126 ext. papers	5,617 ext. citations	3.1 avg, IF	6.11 L-index

#	Paper	IF	Citations
114	Optical Properties **2021**, 91-121		
113	Operational Principles of Hybrid Perovskite Solar Cells **2021**, 275-308		1
112	Roles of Center Cations **2021**, 253-273		
111	Carrier Transport Properties **2021**, 151-171		
110	Appendix B: Numerical Values of Shockley–Queisser Limit **2021**, 563-565		0
109	Appendix A: Optical Constants of Hybrid Perovskite Materials **2021**, 541-562		
108	Crystal Structures **2021**, 65-90		
107	Physical Properties Determined by Density Functional Theory **2021**, 123-149		
106	Photoluminescence Properties **2021**, 207-228		
105	Efficiency Limits of Single and Tandem Solar Cells **2021**, 309-337		
104	Fully automated spectroscopic ellipsometry analyses: Application to MoOx thin films. *Journal of Applied Physics*, **2021**, 129, 243102	2.5	0
103	Band-Gap-Engineered Transparent Perovskite Solar Modules to Combine Photovoltaics with Photosynthesis. *ACS Applied Materials & Interfaces*, **2021**, 13, 39230-39238	9.5	1
102	Vertically Stacked Perovskite Detectors for Color Sensing and Color Vision. *Advanced Materials Interfaces*, **2020**, 7, 2000459	4.6	15
101	Extraordinary Strong Band-Edge Absorption in Distorted Chalcogenide Perovskites. *Solar Rrl*, **2020**, 4, 1900555	7.1	31
100	Very high oscillator strength in the band-edge light absorption of zincblende, chalcopyrite, kesterite, and hybrid perovskite solar cell materials. *Physical Review Materials*, **2020**, 4,	3.2	1
99	Highly accurate prediction of material optical properties based on density functional theory. *Computational Materials Science*, **2020**, 172, 109315	3.2	19
98	Perovskite Color Detectors: Approaching the Efficiency Limit. *ACS Applied Materials & Interfaces*, **2020**, 12, 47831-47839	9.5	18

97	Maximum Efficiencies and Performance-Limiting Factors of Inorganic and Hybrid Perovskite Solar Cells. *Physical Review Applied*, **2019**, 12,	4.3	11
96	Optical Characteristics and Operational Principles of Hybrid Perovskite Solar Cells. *Physica Status Solidi (A) Applications and Materials Science*, **2018**, 215, 1700730	1.6	31
95	Tail state formation in solar cell materials: First principles analyses of zincblende, chalcopyrite, kesterite, and hybrid perovskite crystals. *Physical Review Materials*, **2018**, 2,	3.2	30
94	Optical Properties of Cu(In,Ga)Se2. *Springer Series in Optical Sciences*, **2018**, 253-280	0.5	
93	Organic-Inorganic Hybrid Perovskite Solar Cells. *Springer Series in Optical Sciences*, **2018**, 463-507	0.5	1
92	Transparent Conductive Oxide Materials. *Springer Series in Optical Sciences*, **2018**, 523-563	0.5	1
91	Amorphous/Crystalline Si Heterojunction Solar Cells. *Springer Series in Optical Sciences*, **2018**, 227-252	0.5	
90	Effect of Roughness on Ellipsometry Analysis. *Springer Series in Optical Sciences*, **2018**, 155-172	0.5	2
89	Organic-Inorganic Hybrid Perovskites. *Springer Series in Optical Sciences*, **2018**, 471-493	0.5	1
88	Transparent Conductive Oxides. *Springer Series in Optical Sciences*, **2018**, 495-541	0.5	
87	Substrates and Coating Layers. *Springer Series in Optical Sciences*, **2018**, 575-608	0.5	1
86	Analysis of Optical and Recombination Losses in Solar Cells. *Springer Series in Optical Sciences*, **2018**, 29-82	0.5	2
85	Characterization of Textured Structures. *Springer Series in Optical Sciences*, **2018**, 139-168	0.5	
84	Inorganic Semiconductors and Passivation Layers. *Springer Series in Optical Sciences*, **2018**, 319-426	0.5	1
83	Organic Semiconductors. *Springer Series in Optical Sciences*, **2018**, 427-469	0.5	
82	Very small tail state formation in Cu2ZnGeSe4. *Applied Physics Letters*, **2018**, 113, 093901	3.4	19
81	Optimization of amorphous semiconductors and low-/high-k dielectrics through percolation and topological constraint theory. *MRS Bulletin*, **2017**, 42, 39-44	3.2	9
80	Universal rules for visible-light absorption in hybrid perovskite materials. *Journal of Applied Physics*, **2017**, 121, 115501	2.5	61

79	Fast determination of the current loss mechanisms in textured crystalline Si-based solar cells. *Journal of Applied Physics*, **2017**, 122, 203101	2.5	8
78	Determination and interpretation of the optical constants for solar cell materials. *Applied Surface Science*, **2017**, 421, 276-282	6.7	17
77	Ellipsometry **2017**, 705-724		
76	Optical Transitions in Hybrid Perovskite Solar Cells: Ellipsometry, Density Functional Theory, and Quantum Efficiency Analyses for CH3NH3PbI3. *Physical Review Applied*, **2016**, 5,	4.3	229
75	Network structure of a-SiO:H layers fabricated by plasma-enhanced chemical vapor deposition: Comparison with a-SiC:H layers. *Journal of Non-Crystalline Solids*, **2016**, 440, 49-58	3.9	11
74	Breaking network connectivity leads to ultralow thermal conductivities in fully dense amorphous solids. *Applied Physics Letters*, **2016**, 109, 191905	3.4	10
73	Quantitative determination of optical and recombination losses in thin-film photovoltaic devices based on external quantum efficiency analysis. *Journal of Applied Physics*, **2016**, 120, 064505	2.5	81
72	Degradation mechanism of CH3NH3PbI3 perovskite materials upon exposure to humid air. *Journal of Applied Physics*, **2016**, 119, 115501	2.5	140
71	Dielectric functions of Cu2ZnSnSe4 and Cu2SnSe3 semiconductors. *Journal of Applied Physics*, **2015**, 117, 015702	2.5	38
70	Optical constants of Cu(In, Ga)Se2 for arbitrary Cu and Ga compositions. *Journal of Applied Physics*, **2015**, 117, 195703	2.5	39
69	Characterization of □-Si:H/a-Si:H tandem solar cell structures by spectroscopic ellipsometry. *Thin Solid Films*, **2014**, 571, 756-761	2.2	11
68	Ellipsometry characterization of polycrystalline ZnO layers with the modeling of carrier concentration gradient: Effects of grain boundary, humidity, and surface texture. *Journal of Applied Physics*, **2014**, 115, 133505	2.5	16
67	Quantitative Assessment of Optical Gain and Loss in Submicron-Textured CuIn1□GaxSe2 Solar Cells Fabricated by Three-Stage Coevaporation. *Physical Review Applied*, **2014**, 2,	4.3	50
66	Ellipsometry analysis of a-Si:H solar cell structures with submicron-size textures using glass-side illumination. *Thin Solid Films*, **2014**, 565, 222-227	2.2	6
65	Characterization of a-Si:H thin layers incorporated into textured a-Si:H/c-Si solar cell structures by spectroscopic ellipsometry using a tilt-angle optical configuration. *Thin Solid Films*, **2014**, 569, 64-69	2.2	7
64	Development and Stagnation of Ellipsometry Research Field in Japan. *Hyomen Kagaku*, **2014**, 35, 285-285		
63	Nondestructive characterization of textured a-Si:H/c-Si heterojunction solar cell structures with nanometer-scale a-Si:H and In2O3:Sn layers by spectroscopic ellipsometry. *Journal of Applied Physics*, **2013**, 114, 043101	2.5	9
62	Characterization of textured SnO2:F layers by ellipsometry using glass-side illumination. *Thin Solid Films*, **2013**, 534, 149-154	2.2	10

61	Dielectric function of Cu(In, Ga)Se2-based polycrystalline materials. *Journal of Applied Physics*, **2013**, 113, 063505	2.5	83
60	Local network structure of a-SiC:H and its correlation with dielectric function. *Journal of Applied Physics*, **2013**, 114, 233513	2.5	7
59	Ellipsometry characterization of a-Si:H layers for thin-film solar cells. *Journal of Non-Crystalline Solids*, **2012**, 358, 2257-2259	3.9	13
58	Optical characterization of textured SnO2:F layers using spectroscopic ellipsometry. *Journal of Applied Physics*, **2012**, 112, 083507	2.5	11
57	Mapping Characterization of SnO$_{2}$:F Transparent Conductive Oxide Layers by Ellipsometry Technique. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB01	1.4	5
56	Correlation between oxygen stoichiometry, structure, and opto-electrical properties in amorphous In2O3:H films. *Journal of Applied Physics*, **2012**, 111, 063721	2.5	29
55	Complete parameterization of the dielectric function of microcrystalline silicon fabricated by plasma-enhanced chemical vapor deposition. *Journal of Applied Physics*, **2012**, 111, 083509	2.5	21
54	Light-Induced Conductivity Enhancement in Boron-Doped Zinc Oxide Thin Films Deposited by Low-Pressure Chemical Vapor Deposition. *Applied Physics Express*, **2012**, 5, 085802	2.4	3
53	Mapping Characterization of SnO2:F Transparent Conductive Oxide Layers by Ellipsometry Technique. *Japanese Journal of Applied Physics*, **2012**, 51, 10NB01	1.4	6
52	Dielectric function of a-Si:H based on local network structures. *Physical Review B*, **2011**, 83,	3.3	76
51	Optoelectronic properties of Mg2Si semiconducting layers with high absorption coefficients. *Journal of Applied Physics*, **2011**, 110, 063723	2.5	44
50	High-precision characterization of textured a-Si:H/SnO2:F structures by spectroscopic ellipsometry. *Journal of Applied Physics*, **2011**, 110, 073518	2.5	25
49	Ellipsometry Characterization of Hydrogenated Amorphous Silicon Layers Formed on Textured Crystalline Silicon Substrates. *Applied Physics Express*, **2010**, 3, 116604	2.4	11
48	Hydrogen-doped In2O3 transparent conducting oxide films prepared by solid-phase crystallization method. *Journal of Applied Physics*, **2010**, 107, 033514	2.5	104
47	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
46	Optimization of interface structures in crystalline silicon heterojunction solar cells. *Solar Energy Materials and Solar Cells*, **2009**, 93, 725-728	6.4	19
45	Luminescent properties of doped freestanding silicon nanocrystals embedded in MEH-PPV. *Solar Energy Materials and Solar Cells*, **2009**, 93, 774-778	6.4	9
44	Ultrafast deposition of microcrystalline silicon films using high-density microwave plasma. *Solar Energy Materials and Solar Cells*, **2009**, 93, 812-815	6.4	1

43	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
42	Top-down prepared silicon nanocrystals and a conjugated polymer-based bulk heterojunction: Optoelectronic and photovoltaic applications. *Acta Materialia*, **2009**, 57, 5986-5995	8.4	21
41	Ellipsometry **2009**,		2
40	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
39	Microcrystalline Si1-xGexSolar Cells Exhibiting Enhanced Infrared Response with Reduced Absorber Thickness. *Applied Physics Express*, **2008**, 1, 031501	2.4	27
38	Structural and electrical properties of hydrogen-doped . *Journal of Non-Crystalline Solids*, **2008**, 354, 2805-2808	3.4	37
37	Optical emission spectroscopy of atmospheric pressure microwave plasmas. *Journal of Applied Physics*, **2008**, 104, 054908	2.5	14
36	Reduction of Optical Loss in Hydrogenated Amorphous Silicon/Crystalline Silicon Heterojunction Solar Cells by High-Mobility Hydrogen-Doped In2O3Transparent Conductive Oxide. *Applied Physics Express*, **2008**, 1, 041501	2.4	69
35	Understanding of Passivation Mechanism in Heterojunction c-Si Solar Cells. *Materials Research Society Symposia Proceedings*, **2008**, 1066, 1		7
34	Improved transport and photostability of poly(methoxy-ethylexyloxy-phenylenevinilene) polymer thin films by boron doped freestanding silicon nanocrystals. *Applied Physics Letters*, **2008**, 92, 143301	3.4	14
33	Impact of annealing on passivation of a-Si:H / c-Si heterostructures. *Conference Record of the IEEE Photovoltaic Specialists Conference*, **2008**,		6
32	Evolution of Film Crystalline Structure During the Ultrafast Deposition of Crystalline Si Films. *Materials Research Society Symposia Proceedings*, **2008**, 1066, 1		1
31	Effects of a-Si:H layer thicknesses on the performance of a-Si:H□-Si heterojunction solar cells. *Journal of Applied Physics*, **2007**, 101, 054516	2.5	169
30	**2007**,		1172
29	Hydrogen-doped In2O3as High-mobility Transparent Conductive Oxide. *Japanese Journal of Applied Physics*, **2007**, 46, L685-L687	1.4	180
28	Application of hydrogenated amorphous silicon oxide layers to c-Si heterojunction solar cells. *Applied Physics Letters*, **2007**, 91, 133508	3.4	93
27	Impact of epitaxial growth at the heterointerface of a-Si:H□-Si solar cells. *Applied Physics Letters*, **2007**, 90, 013503	3.4	156
26	Interface Structure in a-Si:H/c-Si Heterojunction Solar Cells Characterized by Optical Diagnosis Technique **2006**,		4

25	Real-time monitoring and process control in amorphous/crystalline silicon heterojunction solar cells by spectroscopic ellipsometry and infrared spectroscopy. *Applied Physics Letters*, **2005**, 86, 032112	3.4	75
24	Effects of carrier concentration on the dielectric function of ZnO:Ga and In2O3:Sn studied by spectroscopic ellipsometry: Analysis of free-carrier and band-edge absorption. *Physical Review B*, **2005**, 71,	3.3	362
23	Application of Spectroscopic Ellipsometry and Infrared Spectroscopy for the Real-Time Control and Characterization of a-Si:H Growth in a-Si:H/c-Si Heterojunction Solar Cells. *Materials Research Society Symposia Proceedings*, **2005**, 862, 1411		2
22	Real-time studies of amorphous and microcrystalline Si:H growth by spectroscopic ellipsometry and infrared spectroscopy. *Thin Solid Films*, **2004**, 455-456, 670-674	2.2	8
21	Nucleation mechanism of microcrystalline silicon from the amorphous phase. *Journal of Non-Crystalline Solids*, **2004**, 338-340, 97-101	3.9	20
20	Fundamental aspects of low-temperature growth of microcrystalline silicon. *Thin Solid Films*, **2003**, 430, 130-134	2.2	29
19	Interface-layer formation in microcrystalline Si:H growth on ZnO substrates studied by real-time spectroscopic ellipsometry and infrared spectroscopy. *Journal of Applied Physics*, **2003**, 93, 2400-2409	2.5	45
18	Real-time characterization of free-carrier absorption during epitaxial Si p-layer growth. *Applied Physics Letters*, **2003**, 82, 1227-1229	3.4	12
17	Real-time observation of the energy band diagram during microcrystalline silicon p/interface formation. *Applied Physics Letters*, **2003**, 83, 4348-4350	3.4	3
16	Stress-Induced Nucleation of Microcrystalline Silicon from Amorphous Phase. *Japanese Journal of Applied Physics*, **2002**, 41, 2821-2828	1.4	50
15	Depth profiling of silicon/hydrogen bonding modes in amorphous and microcrystalline Si:H thin films by real-time infrared spectroscopy and spectroscopic ellipsometry. *Journal of Applied Physics*, **2002**, 91, 4181-4190	2.5	51
14	Microcrystalline silicon nucleation sites in the sub-surface of hydrogenated amorphous silicon. *Surface Science*, **2002**, 497, 333-340	1.8	45
13	Real-time spectroscopic ellipsometry studies of the nucleation and grain growth processes in microcrystalline silicon thin films. *Physical Review B*, **2001**, 63,	3.3	114
12	Effect of Strained Si-Si Bonds in Amorphous Silicon Incubation Layer on Microcrystalline Silicon Nucleation. *Materials Research Society Symposia Proceedings*, **2001**, 664, 121		5
11	Assessment of effective-medium theories in the analysis of nucleation and microscopic surface roughness evolution for semiconductor thin films. *Physical Review B*, **2000**, 61, 10832-10844	3.3	213
10	Analysis of contamination, hydrogen emission, and surface temperature variations using real time spectroscopic ellipsometry during p/i interface formation in amorphous silicon p-i-n solar cells. *Applied Physics Letters*, **1999**, 74, 3687-3689	3.4	8
9	Interface-layer formation mechanism in a-Si:H thin-film growth studied by real-time spectroscopic ellipsometry and infrared spectroscopy. *Physical Review B*, **1999**, 60, 13598-13604	3.3	67
8	Real time spectroscopic ellipsometry studies of the nucleation and growth of p-type microcrystalline silicon films on amorphous silicon using B2H6, B(CH3)3 and BF3 dopant source gases. *Journal of Applied Physics*, **1999**, 85, 4141-4153	2.5	34

7	Optimization of hydrogenated amorphous silicon p□i□n solar cells with two-step i layers guided by real-time spectroscopic ellipsometry. *Applied Physics Letters*, **1998**, 73, 1526-1528	3.4	197
6	Real time spectroscopic ellipsometry characterization of structural and thermal equilibration of amorphous silicon□carbon alloy p layers in p-i-n solar cell fabrication. *Journal of Applied Physics*, **1998**, 84, 2278-2286	2.5	12
5	Optical depth profiling of band gap engineered interfaces in amorphous silicon solar cells at monolayer resolution. *Applied Physics Letters*, **1998**, 72, 2993-2995	3.4	22
4	Application of real time spectroscopic ellipsometry for high resolution depth profiling of compositionally graded amorphous silicon alloy thin films. *Applied Physics Letters*, **1997**, 70, 2150-2152	3.4	17
3	Growth of hydrogenated amorphous silicon and its alloys. *Current Opinion in Solid State and Materials Science*, **1997**, 2, 417-424	12	6
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