Hiroyuki Fujiwara

List of Publications by Year
in descending order

105 papers	6,123 citations	126907 33 h-index	102487 66 g-index
126 all docs	126 docs citations	126 times ranked	6240 citing authors

#	Article	IF	Citations
1	Effects of carrier concentration on the dielectric function of ZnO:Ga andIn2O3:Snstudied by spectroscopic ellipsometry: Analysis of free-carrier and band-edge absorption. Physical Review B, 2005, 71, .	3.2	418
2	Optical Transitions in Hybrid Perovskite Solar Cells: Ellipsometry, Density Functional Theory, and Quantum Efficiency Analyses for<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>CH</mml:mi></mml:mrow><mml:mn>3</mml:mn></mml:msub><mr Physical Review Applied, 2016, 5, .	3.8	322
3	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.	3.2	243
4	Hydrogen-doped In₂O₃ as High-mobility Transparent Conductive Oxide. Japanese Journal of Applied Physics, 2007, 46, L685.	1.5	219
5	Optimization of hydrogenated amorphous silicon pâ€“iâ€“n solar cells with two-step i layers guided by real-time spectroscopic ellipsometry. Applied Physics Letters, 1998, 73, 1526-1528.	3.3	217
6	Effects of aâ€Si:H layer thicknesses on the performance of aâ€Si:Hâˆ•câ€Si heterojunction solar cells. Journal of Applied Physics, 2007, 101, 054516.	2.5	196
7	Impact of epitaxial growth at the heterointerface of a-Si:Hâˆ•c-Si solar cells. Applied Physics Letters, 2007, 90, 013503.	3.3	193
8	Degradation mechanism of CH3NH3PbI3 perovskite materials upon exposure to humid air. Journal of Applied Physics, 2016, 119, .	2.5	168
9	Real-time spectroscopic ellipsometry studies of the nucleation and grain growth processes in microcrystalline silicon thin films. Physical Review B, 2001, 63, .	3.2	126
10	Hydrogen-doped In2O3 transparent conducting oxide films prepared by solid-phase crystallization method. Journal of Applied Physics, 2010, 107, .	2.5	126
11	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, .	3.3	121
12	Application of hydrogenated amorphous silicon oxide layers to c-Si heterojunction solar cells. Applied Physics Letters, 2007, 91, .	3.3	116
13	Quantitative determination of optical and recombination losses in thin-film photovoltaic devices based on external quantum efficiency analysis. Journal of Applied Physics, 2016, 120, .	2.5	105
14	Dielectric function of Cu(In, Ga)Se2-based polycrystalline materials. Journal of Applied Physics, 2013, 113, .	2.5	98
15	Universal rules for visible-light absorption in hybrid perovskite materials. Journal of Applied Physics, 2017, 121, .	2.5	91
16	Dielectric function of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>a</mml:mi></mml:mrow></mml:math>-Si:H based on local network structures. Physical Review B, 2011, 83, .	3.2	90
17	Real-time monitoring and process control in amorphousâˆ•crystalline silicon heterojunction solar cells by spectroscopic ellipsometry and infrared spectroscopy. Applied Physics Letters, 2005, 86, 032112.	3.3	84
18	Extraordinary Strong Bandâ€Edge Absorption in Distorted Chalcogenide Perovskites. Solar Rrl, 2020, 4, 1900555.	5.8	82

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19	Reduction of Optical Loss in Hydrogenated Amorphous Silicon/Crystalline Silicon Heterojunction Solar Cells by High-Mobility Hydrogen-Doped In₂O₃Transparent Conductive Oxide. Applied Physics Express, 0, 1, 041501.	2.4	79
20	Interface-layer formation mechanism inaâ˘Si:Hthin-film growth studied by real-time spectroscopic ellipsometry and infrared spectroscopy. Physical Review B, 1999, 60, 13598-13604.	3.2	73
21	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, [illegible]	6.2	68
22	Quantitative Assessment of Optical Gain and Loss in Submicron-Textured<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi mathvariant="normal">C</mml:mi><mml:mi mathvariant="normal">u</mml:mi><mml:mi mathvariant="normal">I</mml:mi><mml:msub><mml:mrow><mml:mi mathvariant="normal">n</mml:mi></mml:mrow><mml:mrow><mml:mn>1</mml:mn><mml:mo>â˘</mml:mo><mml:mi>x</mml:mi></r mathvariant="normal">G</mml:mi><mml:msub><mml:mrow><mml:mi mathvariant="norma. Physical Re	3.8	67
23	Stress-Induced Nucleation of Microcrystalline Silicon from Amorphous Phase. Japanese Journal of Applied Physics, 2002, 41, 2821-2828.	1.5	57
24	Depth profiling of siliconâ€"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	56
25	Optoelectronic properties of Mg2Si semiconducting layers with high absorption coefficients. Journal of Applied Physics, 2011, 110, .	2.5	54
26	Optical constants of Cu(In, Ga)Se2 for arbitrary Cu and Ga compositions. Journal of Applied Physics, 2015, 117, .	2.5	53
27	Microcrystalline silicon nucleation sites in the sub-surface of hydrogenated amorphous silicon. Surface Science, 2002, 497, 333-340.	1.9	48
28	Optical Characteristics and Operational Principles of Hybrid Perovskite Solar Cells. Physica Status Solidi (A) Applications and Materials Science, 2018, 215, 1700730.	1.8	48
29	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	47
30	Structural and electrical properties of hydrogen-doped <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si13.gif" overflow="scroll"><mml:mrow><mml:msub><mml:mrow><mml:mtext>In</mml:mtext></mml:mrow><mml:mrow><mml:mn>2</mml:m films fabricated by solid-phase crystallization. Journal of Non-Crystalline Solids, 2008, 354, 2805-2808.	3.1	41
31	Dielectric functions of Cu2ZnSnSe4 and Cu2SnSe3 semiconductors. Journal of Applied Physics, 2015, 117, 015702.	2.5	40
32	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	39
33	Tail state formation in solar cell materials: First principles analyses of zincblende, chalcopyrite, kesterite, and hybrid perovskite crystals. Physical Review Materials, 2018, 2, .	2.4	39
34	Correlation between oxygen stoichiometry, structure, and opto-electrical properties in amorphous In2O3:H films. Journal of Applied Physics, 2012, 111, .	2.5	35
35	Microcrystalline Si_{1-<i>x</i>}Ge_{<i>x</i>}Solar Cells Exhibiting Enhanced Infrared Response with Reduced Absorber Thickness. Applied Physics Express, 0, 1, 031501.	2.4	34
36	Fundamental aspects of low-temperature growth of microcrystalline silicon. Thin Solid Films, 2003, 430, 130-134.	1.8	33

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37	Highly accurate prediction of material optical properties based on density functional theory. Computational Materials Science, 2020, 172, 109315.	3.0	33
38	Perovskite Color Detectors: Approaching the Efficiency Limit. ACS Applied Materials & Interfaces, 2020, 12, 47831-47839.	8.0	29
39	Very small tail state formation in Cu2ZnGeSe4. Applied Physics Letters, 2018, 113, .	3.3	28
40	Vertically Stacked Perovskite Detectors for Color Sensing and Color Vision. Advanced Materials Interfaces, 2020, 7, 2000459.	3.7	28
41	Optical depth profiling of band gap engineered interfaces in amorphous silicon solar cells at monolayer resolution. Applied Physics Letters, 1998, 72, 2993-2995.	3.3	27
42	High-precision characterization of textured a-Si:H/SnO2:F structures by spectroscopic ellipsometry. Journal of Applied Physics, 2011, 110, .	2.5	27
43	Top-down prepared silicon nanocrystals and a conjugated polymer-based bulk heterojunction: Optoelectronic and photovoltaic applications. Acta Materialia, 2009, 57, 5986-5995.	7.9	26
44	Complete parameterization of the dielectric function of microcrystalline silicon fabricated by plasma-enhanced chemical vapor deposition. Journal of Applied Physics, 2012, 111, .	2.5	25
45	Determination and interpretation of the optical constants for solar cell materials. Applied Surface Science, 2017, 421, 276-282.	6.1	24
46	Nucleation mechanism of microcrystalline silicon from the amorphous phase. Journal of Non-Crystalline Solids, 2004, 338-340, 97-101.	3.1	22
47	Improved transport and photostability of poly(methoxy-ethylexyloxy-phenylenevinilene) polymer thin films by boron doped freestanding silicon nanocrystals. Applied Physics Letters, 2008, 92, .	3.3	22
48	Optimization of interface structures in crystalline silicon heterojunction solar cells. Solar Energy Materials and Solar Cells, 2009, 93, 725-728.	6.2	21
49	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.	3.3	20
50	Maximum Efficiencies and Performance-Limiting Factors of Inorganic and Hybrid Perovskite Solar Cells. Physical Review Applied, 2019, 12, .	3.8	19
51	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, .	2.5	17
52	Breaking network connectivity leads to ultralow thermal conductivities in fully dense amorphous solids. Applied Physics Letters, 2016, 109, .	3.3	16
53	Crystalline Si Heterojunction Solar Cells with the Double Heterostructure of Hydrogenated Amorphous Silicon Oxide. Japanese Journal of Applied Physics, 2009, 48, 064506.	1.5	15
54	Optical emission spectroscopy of atmospheric pressure microwave plasmas. Journal of Applied Physics, 2008, 104, 054908.	2.5	14

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55	Understanding of Passivation Mechanism in Heterojunction c-Si Solar Cells. Materials Research Society Symposia Proceedings, 2008, 1066, 1.	0.1	14
56	Ellipsometry characterization of a-Si:H layers for thin-film solar cells. Journal of Non-Crystalline Solids, 2012, 358, 2257-2259.	3.1	14
57	Real time spectroscopic ellipsometry characterization of structural and thermal equilibration of amorphous siliconâ€“carbon alloy p layers in p-i-n solar cell fabrication. Journal of Applied Physics, 1998, 84, 2278-2286.	2.5	13
58	Luminescent properties of doped freestanding silicon nanocrystals embedded in MEH-PPV. Solar Energy Materials and Solar Cells, 2009, 93, 774-778.	6.2	13
59	Optical characterization of textured SnO2:F layers using spectroscopic ellipsometry. Journal of Applied Physics, 2012, 112, 083507.	2.5	13
60	Real-time characterization of free-carrier absorption during epitaxial Si p-layer growth. Applied Physics Letters, 2003, 82, 1227-1229.	3.3	12
61	Fast determination of the current loss mechanisms in textured crystalline Si-based solar cells. Journal of Applied Physics, 2017, 122, .	2.5	12
62	Ellipsometry Characterization of Hydrogenated Amorphous Silicon Layers Formed on Textured Crystalline Silicon Substrates. Applied Physics Express, 2010, 3, 116604.	2.4	11
63	Characterization of Î¼c-Si:H/a-Si:H tandem solar cell structures by spectroscopic ellipsometry. Thin Solid Films, 2014, 571, 756-761.	1.8	11
64	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.	3.1	11
65	Optimization of amorphous semiconductors and low-/high-k dielectrics through percolation and topological constraint theory. MRS Bulletin, 2017, 42, 39-44.	3.5	11
66	Characterization of textured SnO2:F layers by ellipsometry using glass-side illumination. Thin Solid Films, 2013, 534, 149-154.	1.8	10
67	Growth of hydrogenated amorphous silicon and its alloys. Current Opinion in Solid State and Materials Science, 1997, 2, 417-424.	11.5	9
68	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, .	2.5	9
69	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.	3.3	8
70	Real-time studies of amorphous and microcrystalline Si:H growth by spectroscopic ellipsometry and infrared spectroscopy. Thin Solid Films, 2004, 455-456, 670-674.	1.8	8
71	Impact of annealing on passivation of a-Si:H / c-Si heterostructures. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	8
72	Local network structure of a-SiC:H and its correlation with dielectric function. Journal of Applied Physics, 2013, 114, 233513.	2.5	8

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73	Band-Gap-Engineered Transparent Perovskite Solar Modules to Combine Photovoltaics with Photosynthesis. ACS Applied Materials & Interfaces, 2021, 13, 39230-39238.	8.0	8
74	Effect of Strained Si-Si Bonds in Amorphous Silicon Incubation Layer on Microcrystalline Silicon Nucleation. Materials Research Society Symposia Proceedings, 2001, 664, 121.	0.1	7
75	Mapping Characterization of SnO₂:F Transparent Conductive Oxide Layers by Ellipsometry Technique. Japanese Journal of Applied Physics, 2012, 51, 10NB01.	1.5	7
76	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.	1.8	7
77	Beyond Tristimulus Color Vision with Perovskite-Based Multispectral Sensors. ACS Applied Materials & Interfaces, 2022, 14, 11645-11653.	8.0	7
78	Interface Structure in a-Si:H/c-Si Heterojunction Solar Cells Characterized by Optical Diagnosis Technique. , 2006, , .		6
79	Ellipsometry analysis of a-Si:H solar cell structures with submicron-size textures using glass-side illumination. Thin Solid Films, 2014, 565, 222-227.	1.8	6
80	Analysis of Optical and Recombination Losses in Solar Cells. Springer Series in Optical Sciences, 2018, , 29-82.	0.7	6
81	Ellipsometry. , 2009, , .		6
82	Mapping Characterization of SnO₂:F Transparent Conductive Oxide Layers by Ellipsometry Technique. Japanese Journal of Applied Physics, 2012, 51, 10NB01.	1.5	6
83	Fully automated spectroscopic ellipsometry analyses: Application to MoO<i>x</i> thin films. Journal of Applied Physics, 2021, 129, .	2.5	5
84	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, .	2.4	5
85	Data Analysis Examples. , 0, , 249-310.		4
86	Effect of Roughness on Ellipsometry Analysis. Springer Series in Optical Sciences, 2018, , 155-172.	0.7	4
87	Global prediction of the energy yields for hybrid perovskite/Si tandem and Si heterojunction single solar modules. Progress in Photovoltaics: Research and Applications, 2022, 30, 1198-1218.	8.1	4
88	Real-time observation of the energy band diagram during microcrystalline silicon pâ€“i interface formation. Applied Physics Letters, 2003, 83, 4348-4350.	3.3	3
89	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
90	Transparent Conductive Oxide Materials. Springer Series in Optical Sciences, 2018, , 523-563.	0.7	3

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91	Inorganic Semiconductors and Passivation Layers. Springer Series in Optical Sciences, 2018, , 319-426.	0.7	3
92	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.	0.1	2
93	Organic-Inorganic Hybrid Perovskite Solar Cells. Springer Series in Optical Sciences, 2018, , 463-507.	0.7	2
94	Evolution of Film Crystalline Structure During the Ultrafast Deposition of Crystalline Si Films. Materials Research Society Symposia Proceedings, 2008, 1066, 1.	0.1	1
95	Ultrafast deposition of microcrystalline silicon films using high-density microwave plasma. Solar Energy Materials and Solar Cells, 2009, 93, 812-815.	6.2	1
96	Organic-Inorganic Hybrid Perovskites. Springer Series in Optical Sciences, 2018, , 471-493.	0.7	1
97	Transparent Conductive Oxides. Springer Series in Optical Sciences, 2018, , 495-541.	0.7	1
98	Substrates and Coating Layers. Springer Series in Optical Sciences, 2018, , 575-608.	0.7	1
99	Organic Semiconductors. Springer Series in Optical Sciences, 2018, , 427-469.	0.7	1
100	Transport and stability of doped freestanding silicon nanocrystals and MEH-PPV blends. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	0
101	Ellipsometry analysis of a-Si:H/SnO<inf>2</inf>:F textured structures. , 2011, , .		0
102	Optical Properties of Cu(In,Ga)Se2. Springer Series in Optical Sciences, 2018, , 253-280.	0.7	0
103	Amorphous/Crystalline Si Heterojunction Solar Cells. Springer Series in Optical Sciences, 2018, , 227-252.	0.7	0
104	Characterization of Textured Structures. Springer Series in Optical Sciences, 2018, , 139-168.	0.7	0
105	Development and Stagnation of Ellipsometry Research Field in Japan. Hyomen Kagaku, 2014, 35, 285-285.	0.0	0