

Nikolas J Podraza

List of Publications by Year in descending order

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120
papers

3,296
citations

236925

25
h-index

155660

55
g-index

122
all docs

122
docs citations

122
times ranked

4804
citing authors

#	ARTICLE	IF	CITATIONS
1	Efficient two-terminal all-perovskite tandem solar cells enabled by high-quality low-bandgap absorber layers. <i>Nature Energy</i> , 2018, 3, 1093-1100.	39.5	422
2	Fabrication of Efficient Low-Bandgap Perovskite Solar Cells by Combining Formamidinium Tin Iodide with Methylammonium Lead Iodide. <i>Journal of the American Chemical Society</i> , 2016, 138, 12360-12363.	13.7	362
3	Correlated metals as transparent conductors. <i>Nature Materials</i> , 2016, 15, 204-210.	27.5	291
4	Reducing Saturation Current Density to Realize High Efficiency Low Bandgap Mixed Tin Lead Halide Perovskite Solar Cells. <i>Advanced Energy Materials</i> , 2019, 9, 1803135.	19.5	255
5	Understanding and Eliminating Hysteresis for Highly Efficient Planar Perovskite Solar Cells. <i>Advanced Energy Materials</i> , 2017, 7, 1700414.	19.5	190
6	Low-bandgap mixed tin lead iodide perovskites with reduced methylammonium for simultaneous enhancement of solar cell efficiency and stability. <i>Nature Energy</i> , 2020, 5, 768-776.	39.5	165
7	High Energy Density, High Temperature Capacitors Utilizing Mn^{2+} -Doped $0.8\text{CaTiO}_3 \cdot 0.2\text{CaHfO}_3$ Ceramics. <i>Journal of the American Ceramic Society</i> , 2012, 95, 1348-1355.	3.8	111
8	Band gap and structure of single crystal BiI ₃ : Resolving discrepancies in literature. <i>Journal of Applied Physics</i> , 2013, 114, .	2.5	109
9	Reducing Operating Temperature in Photovoltaic Modules. <i>IEEE Journal of Photovoltaics</i> , 2018, 8, 532-540.	2.5	68
10	Thermal Poling of Soda Lime Silica Glass with Nonblocking Electrodes Part 1: Effects of Sodium Ion Migration and Water Ingress on Glass Surface Structure. <i>Journal of the American Ceramic Society</i> , 2016, 99, 1221-1230.	3.8	55
11	Through-the-glass spectroscopic ellipsometry for analysis of CdTe thin-film solar cells in the superstrate configuration. <i>Progress in Photovoltaics: Research and Applications</i> , 2016, 24, 1055-1067.	8.1	54
12	Urbach Energy and Open-Circuit Voltage Deficit for Mixed Anion Cation Perovskite Solar Cells. <i>ACS Applied Materials & Interfaces</i> , 2022, 14, 7796-7804.	8.0	53
13	Effect of reduced dimensionality on the optical band gap of SrTiO ₃ . <i>Applied Physics Letters</i> , 2013, 102, .	3.3	52
14	Spectroscopic ellipsometry study of thickness and porosity of the alteration layer formed on international simple glass surface in aqueous corrosion conditions. <i>Npj Materials Degradation</i> , 2018, 2, .	5.8	44
15	Breaking Malus law: Highly efficient, broadband, and angular robust asymmetric light transmitting metasurface. <i>Laser and Photonics Reviews</i> , 2016, 10, 791-798.	8.7	38
16	Correlating the silicon surface passivation to the nanostructure of low-temperature a-Si:H after rapid thermal annealing. <i>Journal of Applied Physics</i> , 2017, 122, .	2.5	36
17	Large-Area Compositional Mapping of $\text{Cu}(\text{In}_{1-x}\text{Ga}_x\text{Se})_2$ Materials and Devices with Spectroscopic Ellipsometry. <i>IEEE Journal of Photovoltaics</i> , 2013, 3, 359-363.	2.5	35
18	Parameterized complex dielectric functions of $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$: applications in optical characterization of compositional nonuniformities and depth profiles in materials and solar cells. <i>Progress in Photovoltaics: Research and Applications</i> , 2016, 24, 1200-1213.	8.1	34

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19	Structural, optical, and hole transport properties of earth-abundant chalcopyrite (CuFeS ₂) nanocrystals. <i>MRS Communications</i> , 2018, 8, 970-978.	1.8	33
20	Large nonlinear optical coefficients in pseudo-tetragonal BiFeO ₃ thin films. <i>Applied Physics Letters</i> , 2013, 103, .	3.3	32
21	Spectroscopic ellipsometry determination of optical and electrical properties of aluminum doped zinc oxide. <i>Applied Surface Science</i> , 2017, 421, 852-858.	6.1	32
22	Irradiance and temperature considerations in the design and deployment of high annual energy yield perovskite/CIGS tandems. <i>Sustainable Energy and Fuels</i> , 2019, 3, 1841-1851.	4.9	30
23	High-Speed Imaging/Mapping Spectroscopic Ellipsometry for In-Line Analysis of Roll-to-Roll Thin-Film Photovoltaics. <i>IEEE Journal of Photovoltaics</i> , 2014, 4, 355-361.	2.5	29
24	Substrate-Dependent Molecular and Nanostructural Orientation of Nafion Thin Films. <i>Advanced Functional Materials</i> , 2019, 29, 1902699.	14.9	28
25	Effects of intrinsic and atmospherically induced defects in narrow bandgap (FASnI ₃) _x (MAPbI ₃) _{1-x} perovskite films and solar cells. <i>Journal of Chemical Physics</i> , 2020, 152, 064705.	3.0	26
26	Optical properties of single-crystal Gd ₃ Ga ₅ O ₁₂ from the infrared to ultraviolet. <i>Physica Status Solidi (B): Basic Research</i> , 2015, 252, 2191-2198.	1.5	25
27	Optical response of mixed methylammonium lead iodide and formamidinium tin iodide perovskite thin films. <i>AIP Advances</i> , 2017, 7, .	1.3	24
28	Low Temperature Crystallization of Metastable Nickel Manganite Spinel Thin Films. <i>Journal of the American Ceramic Society</i> , 2012, 95, 2562-2567.	3.8	22
29	Formamidinium + cesium lead triiodide perovskites: Discrepancies between thin film optical absorption and solar cell efficiency. <i>Solar Energy Materials and Solar Cells</i> , 2018, 188, 228-233.	6.2	21
30	Photogenerated Carrier Transport Properties in Silicon Photovoltaics. <i>Scientific Reports</i> , 2019, 9, 19015.	3.3	20
31	Protecting Perovskite Solar Cells against Moisture-Induced Degradation with Sputtered Inorganic Barrier Layers. <i>ACS Applied Energy Materials</i> , 2021, 4, 7571-7578.	5.1	20
32	Correlations Between Mapping Spectroscopic Ellipsometry Results and Solar Cell Performance for Evaluations of Nonuniformity in Thin-Film Silicon Photovoltaics. <i>IEEE Journal of Photovoltaics</i> , 2013, 3, 387-393.	2.5	19
33	Electrical properties of plasma enhanced chemical vapor deposition a-Si:H and a-Si _{1-x} C _x :H for microbolometer applications. <i>Journal of Applied Physics</i> , 2013, 114, 183705.	2.5	19
34	Applications of real-time and mapping spectroscopic ellipsometry for process development and optimization in hydrogenated silicon thin-film photovoltaics technology. <i>Solar Energy Materials and Solar Cells</i> , 2014, 129, 32-56.	6.2	19
35	Spectroscopic ellipsometry for analysis of polycrystalline thin-film photovoltaic devices and prediction of external quantum efficiency. <i>Applied Surface Science</i> , 2017, 421, 601-607.	6.1	19
36	Emissivity of solar cell cover glass calculated from infrared reflectance measurements. <i>Solar Energy Materials and Solar Cells</i> , 2019, 190, 98-102.	6.2	19

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37	Optical monitoring of CH ₃ NH ₃ PbI ₃ thin films upon atmospheric exposure. Journal Physics D: Applied Physics, 2016, 49, 405102.	2.8	18
38	Fabrication and optimization of single-junction nc-Si:H μ c solar cells using Si:H phase diagram concepts developed by real time spectroscopic ellipsometry. Journal of Non-Crystalline Solids, 2008, 354, 2397-2402.	3.1	17
39	Near infrared to ultraviolet optical properties of bulk single crystal and nanocrystal thin film iron pyrite. Nanotechnology, 2016, 27, 295702.	2.6	14
40	Optical and Electronic Losses Arising from Physically Mixed Interfacial Layers in Perovskite Solar Cells. ACS Applied Materials & Interfaces, 2021, 13, 4923-4934.	8.0	14
41	Real-Time, In-Line, and Mapping Spectroscopic Ellipsometry for Applications in Cu(In _{1-x} Ga _x)Se ₂ by real-time spectroscopic ellipsometry. , 2012, , .	2.5	13
42	Optical properties of single crystal Bi ₄ Ge ₃ O ₁₂ from the infrared to ultraviolet. Journal of Applied Physics, 2014, 116, .	2.5	13
43	High temperature coefficient of resistance molybdenum oxide and nickel oxide thin films for microbolometer applications. Optical Engineering, 2015, 54, 037101.	1.0	13
44	Modification of reactively sputtered NiO thin films by pulsed UV laser irradiation. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600414.	1.8	13
45	Indium Gallium Oxide Emitters for High-Efficiency CdTe-Based Solar Cells. ACS Applied Energy Materials, 2022, 5, 5484-5489.	5.1	13
46	Optical monitoring and control of three-stage coevaporated Cu(In _{1-x} Ga _x)Se ₂ by real-time spectroscopic ellipsometry. , 2012, , .		12
47	Optical Hall Effect of PV Device Materials. IEEE Journal of Photovoltaics, 2018, 8, 1793-1799.	2.5	12
48	Optical and electrical properties of H ₂ plasma-treated ZnO films prepared by atomic layer deposition using supercycles. Materials Science in Semiconductor Processing, 2018, 84, 91-100.	4.0	12
49	Optical properties of soda lime float glass from 3 μ m to 148 μ m (0.41 μ eV to 8.38 μ eV) by spectroscopic ellipsometry. Surface Science Spectra, 2018, 25, 016001.	1.3	12
50	Anisotropic Optical and Frictional Properties of Langmuir-Blodgett Film Consisting of Uniaxially Aligned Rod-Shaped Cellulose Nanocrystals. Advanced Materials Interfaces, 2020, 7, 1902169.	3.7	12
51	Dielectric Functions of a-Si _{1-x} Ge _x :H versus Ge Content, Temperature, and Processing: Advances in Optical Function Parameterization. Materials Research Society Symposia Proceedings, 2006, 910, 1.	0.1	11
52	Spectroscopic Ellipsometry Applied in the Full p-i-n a-Si:H Solar Cell Device Configuration. IEEE Journal of Photovoltaics, 2015, 5, 307-312.	2.5	11
53	Optical properties of thin film Sb ₂ Se ₃ and identification of its electronic losses in photovoltaic devices. Solar Energy, 2021, 228, 38-44.	6.1	11
54	Impact of lifetime on the levelized cost of electricity from perovskite single junction and tandem solar cells. Sustainable Energy and Fuels, 2022, 6, 2718-2726.	4.9	11

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55	Nanostructure evolution of magnetron sputtered hydrogenated silicon thin films. Journal of Applied Physics, 2017, 122, .	2.5	10
56	Optical properties of borosilicate glass from 3.1â€‰mm to 210â€‰nm (0.4â€‰meV to 5.89â€‰eV) by spectroscopic ellipsometry. Surface Science Spectra, 2017, 24, .	1.3	10
57	Optical simulation of external quantum efficiency spectra of CuIn ^{1-x} Ga ^x Se ₂ solar cells from spectroscopic ellipsometry inputs. Journal of Energy Chemistry, 2018, 27, 1151-1169.	12.9	10
58	Real-Time Optimization of Anti-Reflective Coatings for CIGS Solar Cells. Materials, 2020, 13, 4259.	2.9	10
59	Semi-transparent p-type barium copper sulfide as a back contact interface layer for cadmium telluride solar cells. Solar Energy Materials and Solar Cells, 2020, 218, 110764.	6.2	10
60	Impact of Humidity and Temperature on the Stability of the Optical Properties and Structure of MAPbI ₃ , MA _{0.7} FA _{0.3} PbI ₃ and (FAPbI ₃) _{0.95} (MAPbBr ₃) _{0.05} Perovskite Thin Films. Materials, 2021, 14, 4054.	2.9	10
61	Effects of oxygen partial pressure, deposition temperature, and annealing on the optical response of CdS:O thin films as studied by spectroscopic ellipsometry. Journal of Applied Physics, 2016, 120, .	2.5	9
62	Morphological and optical properties of low temperature processed SnO ₂ :F. Physica Status Solidi (B): Basic Research, 2017, 254, 1700102.	1.5	9
63	Conformational Effects of Adsorbed Polymer on the Swelling Behavior of Engineered Clay Minerals. Clays and Clay Minerals, 2012, 60, 363-373.	1.3	8
64	Optical Monitoring and Control of Three-Stage Coevaporated Cu(In _{1-x} Ga _x)Se ₂ by Real-Time Spectroscopic Ellipsometry. IEEE Journal of Photovoltaics, 2013, 3, 375-380.	2.5	8
65	Understanding near infrared absorption in tin doped indium oxide thin films. Journal Physics D: Applied Physics, 2018, 51, 295302.	2.8	8
66	Tailoring the CdS/CdSe/CdTe multilayer structure for optimization of photovoltaic device performance guided by mapping spectroscopic ellipsometry. Solar Energy Materials and Solar Cells, 2021, 221, 110907.	6.2	8
67	Growth of Ta ₂ SnO ₆ Films, a Candidate Wide-Band-Gap p-Type Oxide. Journal of Physical Chemistry C, 2022, 126, 3764-3775.	3.1	8
68	Spectroscopic Ellipsometry Studies of n-i-p Hydrogenated Amorphous Silicon Based Photovoltaic Devices. Materials, 2016, 9, 128.	2.9	7
69	Optical properties of InP from infrared to vacuum ultraviolet studied by spectroscopic ellipsometry. Applied Surface Science, 2017, 421, 813-818.	6.1	7
70	Al+Si Interface Optical Properties Obtained in the Si Solar Cell Configuration. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700480.	1.8	7
71	Determination of conductivity anisotropy and the role of doping in single walled carbon nanotube thin films with THz spectroscopic ellipsometry. Carbon, 2018, 129, 592-597.	10.3	7
72	Atmospherically induced defects in (FASn ₃) _{0.6} (MAPbI ₃) _{0.4} Tj ETQq0 0 0 rgBT /Overlock 10 Tf 175102.	2.8	7

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73	Optical Properties of and Alloys and Their Application for CdTe Photovoltaics. , 2017, , .		6
74	n-i-p Nanocrystalline Hydrogenated Silicon Solar Cells with RF-Magnetron Sputtered Absorbers. Materials, 2019, 12, 1699.	2.9	6
75	Parametric Optical Property Database for CdSe $_{1-x}$ S $_x$ Alloys. Electronic Materials Letters, 2019, 15, 500-504.	2.2	6
76	Glancing angle deposited CdTe: Nanostructured films and impact on solar cell performance. Surface and Coatings Technology, 2020, 381, 125127.	4.8	6
77	PERC silicon PV infrared to ultraviolet optical model. Solar Energy Materials and Solar Cells, 2020, 215, 110655.	6.2	6
78	Spectroscopic ellipsometry studies of CH ₃ NH ₃ PbX ₃ thin films and their growth evolution. , 2015, , .		5
79	LPCVD SiN _x thin film on c-Si wafer by spectroscopic ellipsometry. Surface Science Spectra, 2016, 23, 51-54.	1.3	5
80	Impact of Infrared Optical Properties on Crystalline Si and Thin Film CdTe Solar Cells. , 2017, , .		5
81	Single wall carbon nanotube electrodes for hydrogenated amorphous silicon solar cells. , 2012, , .		4
82	Near infrared to ultraviolet anisotropic optical properties of single crystal SrLaAlO ₄ from spectroscopic ellipsometry. Physica Status Solidi (B): Basic Research, 2016, 253, 2066-2072.	1.5	4
83	Analysis of Compositionally and Structurally Graded Si:H and Si $_{1-x}$ Gex:H Thin Films by Real Time Spectroscopic Ellipsometry. Materials Research Society Symposia Proceedings, 2008, 1066, 1.	0.1	3
84	Characterization of Structure and Growth Evolution for nc-Si:H in the Tandem Photovoltaic Device Configuration. IEEE Journal of Photovoltaics, 2015, 5, 1516-1522.	2.5	3
85	Ellipsometric study of the optical response of ZnS:Cr for PV applications. Applied Surface Science, 2017, 421, 315-319.	6.1	3
86	Electrical Transport Properties from Long Wavelength Ellipsometry. , 2017, , .		3
87	Real Time Spectroscopic Ellipsometry Analysis of First Stage CuIn $_{1-x}$ GaxSe ₂ Growth: Indium-Gallium Selenide Co-Evaporation. Materials, 2018, 11, 145.	2.9	3
88	Monolithic Two-Terminal All-Perovskite Tandem Solar Cells with Power Conversion Efficiency Exceeding 21%. , 2019, , .		3
89	Epitaxial stannate pyrochlore thin films: Limitations of cation stoichiometry and electron doping. APL Materials, 2021, 9, .	5.1	3
90	Optical Properties of Magnesium-Zinc Oxide for Thin Film Photovoltaics. Materials, 2021, 14, 5649.	2.9	3

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91	Surface Roughening Transition in Si _{1-x} Ge _x :H Thin Films. Materials Research Society Symposia Proceedings, 2006, 910, 2.	0.1	2
92	Advanced Deposition Phase Diagrams for Guiding Si:H-Based Multijunction Solar Cells. Materials Research Society Symposia Proceedings, 2007, 989, 2.	0.1	2
93	Effect of c-Si doping density on heterojunction with intrinsic thin layer (HIT) radial junction solar cells. , 2013, , .		2
94	Investigation of doped a-Si _{1&#x2212;x} </inf>C<inf>x</inf>:H as a novel back contact material for CdTe solar cells. , 2014, , .		2
95	Quantum efficiency simulations with inputs from spectroscopic ellipsometry for evaluation of carrier collection in a-Si:H solar cells. , 2015, , .		2
96	Estimating Internal Stress of an Alteration Layer Formed on Corroded Boroaluminosilicate Glass through Spectroscopic Ellipsometry Analysis. ACS Applied Materials & Interfaces, 2021, 13, 50470-50480.	8.0	2
97	CuIn<inf>1−x</inf>Ga<inf>x</inf>Se<inf>2</inf> solar cells with thin absorbers analyzed by spectroscopic ellipsometry: Insights into quantum efficiency and optical/collection losses. , 2016, , .		1
98	Optical gradients in a-Si:H thin films detected using real-time spectroscopic ellipsometry with virtual interface analysis. Applied Surface Science, 2018, 436, 779-784.	6.1	1
99	A Versatile Optical Model Applied to CdTe and CdSe<inf>1−y</inf>Te<inf>y</inf> Alloys: Sensitivity to Film Composition and Relative Defect Density. , 2018, , .		1
100	Formamidinium + Cesium Lead Triiodide Perovskite Thin Films: Optical Properties and Devices. , 2018, , .		1
101	Glancing Angle Deposited CdTe: Optical Properties and Structure. , 2018, , .		1
102	Non-contacting optical probing of photovoltaic device performance. , 2020, , .		1
103	Correlations between mapping spectroscopic ellipsometry results and solar cell performance for evaluations of nonuniformity in thin-film silicon photovoltaics. , 2012, , .		0
104	Large-area compositional mapping of Cu(In<inf>1−x</inf>Ga<inf>x</inf>)Se<inf>2</inf> materials and devices with spectroscopic ellipsometry. , 2012, , .		0
105	Growth evolution of Si:H prepared with SiH<inf>4</inf> + Si<inf>2</inf>H<inf>6</inf> as studied by real time spectroscopic ellipsometry. , 2013, , .		0
106	Multichannel spectroscopic ellipsometry for CdTe Photovoltaics: From real-time monitoring to large-scale mapping. , 2013, , .		0
107	Correlations between mapping spectroscopic ellipsometry results and solar cell performance for evaluations of nonuniformity in thin-film silicon photovoltaics. , 2013, , .		0
108	Optical monitoring and control of three-stage coevaporated Cu(In<inf>1−x</inf>Ga<inf>x</inf>)Se<inf>2</inf> by real-time spectroscopic ellipsometry. , 2013, , .		0

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109	Large-area compositional mapping of Cu(In _{1-x} Ga _x)Se ₂ materials and devices with spectroscopic ellipsometry. , 2013, , .		0
110	Effect of molybdenum deposition temperature on the performance of CuIn _{1-x} Ga _x Se ₂ Solar Cells. , 2015, , .		0
111	Characterization of structure and growth evolution for nc-Si:H in the tandem photovoltaic device configuration. , 2015, , .		0
112	Through-the-glass spectroscopic ellipsometry for simultaneous mapping of coating properties and stress in the glass. , 2015, , .		0
113	Optical properties and degradation monitoring of CH ₃ NH ₃ PbI ₃ . , 2016, , .		0
114	Influence of Deposition Parameters on Silicon Thin Films Deposited by Magnetron Sputtering. , 2017, , .		0
115	Magnetron Sputtered Hydrogenated Silicon Thin Films: Assessment for Application in Photovoltaics. , 2017, , .		0
116	Application of Mapping Spectroscopic Ellipsometry for CdSe/CdTe Solar Cells: Optimization of Low-Temperature Processed Devices with All-Sputtered Semiconductors. , 2017, , .		0
117	Optical Evaluation of PERC Cell Reflectance for Thermal Management. , 2018, , .		0
118	High Efficiency III-V Solar Cells. Springer Series in Optical Sciences, 2018, , 415-438.	0.7	0
119	Characterization of chain alignment at buried interfaces using Mueller matrix spectroscopy. MRS Communications, 2020, 10, 292-297.	1.8	0
120	Mean Free Path of Photoelectronic Excitations in Hydrogenated Amorphous Silicon and Silicon Germanium Alloy Semiconductors. Physica Status Solidi (B): Basic Research, 2021, 258, 2000473.	1.5	0