

# Timothy J Silverman

## List of Publications by Year in descending order

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Version: 2024-02-01

67  
papers

1,251  
citations

623734

14  
h-index

414414

32  
g-index

67  
all docs

67  
docs citations

67  
times ranked

1243  
citing authors

#	ARTICLE	IF	CITATIONS
1	Photovoltaic failure and degradation modes. Progress in Photovoltaics: Research and Applications, 2017, 25, 318-326.	8.1	251
2	Research and development priorities for silicon photovoltaic module recycling to support a circular economy. Nature Energy, 2020, 5, 502-510.	39.5	188
3	Optics-Based Approach to Thermal Management of Photovoltaics: Selective-Spectral and Radiative Cooling. IEEE Journal of Photovoltaics, 2017, 7, 566-574.	2.5	102
4	Climate specific thermomechanical fatigue of flat plate photovoltaic module solder joints. Microelectronics Reliability, 2016, 62, 124-129.	1.7	70
5	Reducing Operating Temperature in Photovoltaic Modules. IEEE Journal of Photovoltaics, 2018, 8, 532-540.	2.5	68
6	Damage in Monolithic Thin-Film Photovoltaic Modules Due to Partial Shade. IEEE Journal of Photovoltaics, 2016, 6, 1333-1338.	2.5	47
7	Thermal and Electrical Effects of Partial Shade in Monolithic Thin-Film Photovoltaic Modules. IEEE Journal of Photovoltaics, 2015, 5, 1742-1747.	2.5	45
8	The Influence of PV Module Materials and Design on Solder Joint Thermal Fatigue Durability. IEEE Journal of Photovoltaics, 2016, 6, 1407-1412.	2.5	34
9	Spectrally Selective Mirrors with Combined Optical and Thermal Benefit for Photovoltaic Module Thermal Management. ACS Photonics, 2018, 5, 1528-1538.	6.6	30
10	Outdoor performance of a thin-film gallium-arsenide photovoltaic module. , 2013, , .		27
11	Energy Yield Analysis of Multiterminal Si-Based Tandem Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 1376-1383.	2.5	26
12	Technoeconomic analysis of high-value, crystalline silicon photovoltaic module recycling processes. Solar Energy Materials and Solar Cells, 2022, 238, 111592.	6.2	25
13	An Illumination- and Temperature-Dependent Analytical Model for Copper Indium Gallium Diselenide (CIGS) Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 1298-1307.	2.5	19
14	Emissivity of solar cell cover glass calculated from infrared reflectance measurements. Solar Energy Materials and Solar Cells, 2019, 190, 98-102.	6.2	19
15	Model for Characterization and Optimization of Spectrally Selective Structures to Reduce the Operating Temperature and Improve the Energy Yield of Photovoltaic Modules. ACS Applied Energy Materials, 2019, 2, 3614-3623.	5.1	17
16	Evaluation of PV module field performance. , 2015, , .		15
17	Light and Elevated Temperature Induced Degradation (LeTID) in a Utility-Scale Photovoltaic System. IEEE Journal of Photovoltaics, 2020, 10, 1084-1092.	2.5	15
18	Real-Time Series Resistance Monitoring in PV Systems Without the Need for I-V Curves. IEEE Journal of Photovoltaics, 2015, 5, 1706-1709.	2.5	14

#	ARTICLE	IF	CITATIONS
19	Large metastability in Cu (In,Ga)Se <sub>2</sub> devices: The importance of buffer properties. Progress in Photovoltaics: Research and Applications, 2019, 27, 749-759.	8.1	14
20	Modeling Thermal Fatigue in CPV Cell Assemblies. IEEE Journal of Photovoltaics, 2011, 1, 242-247.	2.5	13
21	Performance Stabilization of CdTe PV Modules Using Bias and Light. IEEE Journal of Photovoltaics, 2015, 5, 344-349.	2.5	11
22	Illuminated Outdoor Luminescence Imaging of Photovoltaic Modules. , 2017, , .		11
23	PV Degradation “ Mounting & Temperature. , 2019, , .		11
24	Differences in Printed Contacts Lead to Susceptibility of Silicon Cells to Series Resistance Degradation. IEEE Journal of Photovoltaics, 2022, 12, 690-695.	2.5	10
25	A physics-based compact model for CIGS and CdTe solar cells: From voltage-dependent carrier collection to light-enhanced reverse breakdown. , 2015, , .		9
26	Thin-Film Module Reverse-Bias Breakdown Sites Identified by Thermal Imaging. , 2018, , .		9
27	Optical approaches for passive thermal management in c-Si photovoltaic modules. Cell Reports Physical Science, 2021, 2, 100430.	5.6	9
28	Simulation and experiment of thermal fatigue in the CPV die attach. AIP Conference Proceedings, 2012, , .	0.4	8
29	Metastable changes to the temperature coefficients of thin-film photovoltaic modules. , 2014, , .		8
30	Validated Method for Repeatable Power Measurement of CIGS Modules Exhibiting Light-Induced Metastabilities. IEEE Journal of Photovoltaics, 2015, 5, 607-612.	2.5	8
31	Movement of Cracked Silicon Solar Cells During Module Temperature Changes. , 2019, , .		8
32	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
33	Light Management in Bifacial Photovoltaics with Spectrally Selective Mirrors. ACS Applied Energy Materials, 2021, 4, 5397-5402.	5.1	7
34	PERC silicon PV infrared to ultraviolet optical model. Solar Energy Materials and Solar Cells, 2020, 215, 110655.	6.2	6
35	Millions of Small Pressure Cycles Drive Damage in Cracked Solar Cells. IEEE Journal of Photovoltaics, 2022, 12, 1090-1093.	2.5	6
36	Performance stabilization of CdTe PV modules using bias and light. , 2014, , .		5

#	ARTICLE	IF	CITATIONS
37	A novel approach to thermal design of solar modules: Selective-spectral and radiative cooling. , 2016, , .		5
38	Identifying Reverse-Bias Breakdown Sites in $\text{CuIn}_x\text{Ga}(1-x)\text{Se}_2$ . , 2017, , .		5
39	Impact of Infrared Optical Properties on Crystalline Si and Thin Film CdTe Solar Cells. , 2017, , .		5
40	Partial Shade Endurance Testing for Monolithic Photovoltaic Modules. , 2018, , .		5
41	Thermal model to quantify the impact of sub-bandgap reflectance on operating temperature of fielded PV modules. Solar Energy, 2021, 220, 246-250.	6.1	5
42	On the effect of ramp rate in damage accumulation of the CPV die-attach. , 2012, , .		4
43	Thermal and electrical effects of partial shade in monolithic thin-film photovoltaic modules. , 2015, , .		4
44	Real-time series resistance monitoring in PV systems without the need for IV curves. , 2015, , .		4
45	Cracked Solar Cell Performance Depends on Module Temperature. , 2021, , .		4
46	Solder Bond Fatigue is Insensitive to Module Size. IEEE Journal of Photovoltaics, 2021, 11, 1048-1050.	2.5	4
47	Two-layer anti-reflection coatings with optimized sub-bandgap reflection for solar modules. , 2018, , .		4
48	Optical cell temperature measurements of multiple CPV technologies in outdoor conditions. , 2013, , .		3
49	Passive Cooling of Photovoltaics with Desiccants. , 2017, , .		3
50	Performance of Low-Complexity Spectrally Selective One-Dimensional Mirrors for Photovoltaic Thermal Management. , 2018, , .		3
51	Worldwide Physics-Based Lifetime Prediction of c-Si Modules Due to Solder-Bond Failure. IEEE Journal of Photovoltaics, 2022, 12, 533-539.	2.5	3
52	Relative lifetime prediction for CPV die-attach layers. , 2012, , .		2
53	Temperature-dependent light-stabilized states in thin-film PV modules. , 2015, , .		2
54	Low-cost electroluminescence imaging for automated defect characterization in photovoltaic modules. , 2017, , .		2

#	ARTICLE	IF	CITATIONS
55	Yield analysis and comparison of GaInP/Si and GaInP/GaAs multi-terminal tandem solar cells. AIP Conference Proceedings, 2018, , .	0.4	2
56	Inserting a Low-Refractive-Index Dielectric Rear Reflector into PERC Cells: Challenges and Opportunities. , 2019, , .		2
57	Development of Low-Cost, Crack-Tolerant Metallization Using Screen Printing. , 2019, , .		2
58	Insulation or Irradiance: Exploring Why Bifacial Photovoltaics Run Hot. , 2021, , .		2
59	Systematic Operating Temperature Differences Between Al-BSF, PERC, and PERT-With-Optimized-Rear-Reflector Solar Mini-Modules Due to Rear Reflectance. IEEE Journal of Photovoltaics, 2022, 12, 293-300.	2.5	2
60	Notice of Removal Damage in monolithic thin-film photovoltaic modules due to partial shade. , 2017, , .		1
61	Outdoor Testing of c-Si Photovoltaic Modules with Spectrally-Selective Mirrors for Operating Temperature Reduction. , 2019, , .		1
62	Permanent shunts from passing shadows: Reverse-bias damage in thin-film photovoltaic modules. , 2018, , .		0
63	Optical Evaluation of PERC Cell Reflectance for Thermal Management. , 2018, , .		0
64	Representative Modules for Accelerated Thermal Cycling and Static Load Testing. , 2021, , .		0
65	Differences in c-Si solar cell metallization and susceptibility to series resistance degradation. , 2021, , .		0
66	Modeling Spectrally-Selective Reflection for Thermal Management in Monofacial and Bifacial Modules. , 2020, , .		0
67	Venturing outdoors. Nature Energy, 0, , .	39.5	0