Urs Aeberhard

List of Publications by Year
in descending order

75	980	430874	477307
papers	citations	18 h-index	29 g-index

75	75	75	783
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Assessment of Photon Recycling in Perovskite Solar Cells by Fully Coupled Optoelectronic Simulation. Physical Review Applied, 2022, 17, .	3.8	10
2	Pâ€92: Effects of Selfâ€Absorption and Photon Recycling in Metalâ€Halide Perovskite LEDs Assessed by Full Optoâ€Electronic Device Simulation. Digest of Technical Papers SID International Symposium, 2022, 53, 1365-1368.	0.3	0
3	Quantum Transport across Amorphous-Crystalline Interfaces in Tunnel Oxide Passivated Contact Solar Cells: Direct versus Defect-Assisted Tunneling. Chinese Physics Letters, 2021, 38, 036301.	3.3	3
4	Reconciliation of dipole emission with detailed balance rates for the simulation of luminescence and photon recycling in perovskite solar cells. Optics Express, 2021, 29, 14773.	3.4	11
5	Computational assessment of photon recycling in ultra-thin GaAs solar cells. , 2021, , .		0
6	Hot-carrier optoelectronic devices based on semiconductor nanowires. Applied Physics Reviews, 2021, 8, .	11.3	24
7	Photon recycling in perovskite solar cells assessed by a detailed-balance compatible dipole emission model. , 2021, , .		0
8	Rigorous simulation of photon recycling effects in perovskite solar cells and LEDs. , 2021, , .		0
9	Microscopic approach to reciprocity and photon recycling in ultrathin solar cells. , 2020, , .		1
10	Analysis and optimization of perovskite-silicon tandem solar cells by full opto-electronic simulation. , 2020, , .		3
11	Coupled 3D master equation and 1D driftâ€diffusion approach for advanced OLED modeling. Journal of the Society for Information Display, 2020, 28, 440-449.	2.1	8
12	Diluted nitride type-II superlattices: Overcoming the difficulties of bulk GaAsSbN in solar cells. Solar Energy Materials and Solar Cells, 2020, 210, 110500.	6.2	9
13	Computational device optimization and parameter extraction for perovskite-based solar cells. , 2020, , .		0
14	Quantum transport simulation of hot carrier photocurrent generation in quantum well solar cells. Semiconductor Science and Technology, 2019, 34, 094002.	2.0	6
15	Nonequilibrium Green's function picture of nonradiative recombination of the Shockley-Read-Hall type. Physical Review B, 2019, 99, .	3.2	10
16	Challenges in the NEGF Simulation of Quantumâ€Well Photovoltaics Posed by Nonâ€Locality and Localization. Physica Status Solidi (B): Basic Research, 2019, 256, 1800500.	1.5	6
17	Simulation of Thermal Photocarrier Escape in Quantum Well Solar Cells: Electron-Electron vs. Electron-Phonon Interaction. , 2019, , .		0
18	Numerical Optimization of Organic and Hybrid Multijunction Solar Cells. , 2019, , .		2

#	ARTICLE	IF	CITATIONS
19	Quantum-kinetic perspective on photovoltaic device operation in nanostructure-based solar cells. Journal of Materials Research, 2018, 33, 373-386.	2.6	7
20	GaAsN/GaAsSb superlattices as 1 eV layers for efficient multi-junction solar cells. , 2018, , .		0
21	Multiscale in modelling and validation for solar photovoltaics. EPJ Photovoltaics, 2018, 9, 10.	1.6	6
22	Computational characterization of a-Si:H/c-Si interfaces. Journal of Computational Electronics, 2018, 17, 1457-1469.	2.5	3
23	Ab initio study on localization and finite size effects in the structural, electronic, and optical properties of hydrogenated amorphous silicon. Computational Materials Science, 2018, 155, 159-168.	3.0	7
24	Global minimum beryllium hydride sheet with novel negative Poisson's ratio: first-principles calculations. RSC Advances, 2018, 8, 19432-19436.	3.6	7
25	Photovoltaics at the mesoscale: insights from quantum-kinetic simulation. Journal Physics D: Applied Physics, 2018, 51, 323002.	2.8	21
26	Multiscale Modeling of Photovoltaic Devices. International Journal of Photoenergy, 2018, 2018, 1-1.	2.5	1
27	Photocarrier extraction in GaAsSb/GaAsN type-II QW superlattice solar cells. Applied Physics Letters, 2018, 112, .	3.3	27
28	Type-II GaAsSb/GaAsN superlattice solar cells. , 2018, , .		1
29	Rigorous modeling of light absorption in nanostructured materials using a parallel high order finite element time-domain technique. , 2018, , .		0
30	Benzene-like N₆rings in a Be₂N₆monolayer: a stable 2D semiconductor with high carrier mobility. Journal of Materials Chemistry C, 2017, 5, 11515-11521.	5.5	15
31	Microscopic Perspective on Photovoltaic Reciprocity in Ultrathin Solar Cells. Physical Review Letters, 2017, 118, 247702.	7.8	34
32	Ab Initio Description of Optoelectronic Properties at Defective Interfaces in Solar Cells. Lecture Notes in Computer Science, 2017, , 111-124.	1.3	2
33	Photovoltaic reciprocity and quasi-Fermi level splitting in nanostructure-based solar cells (Conference Presentation). , 2017, , .		0
34	Towards a Multi-scale Approach to the Simulation of Silicon Hetero-junction Solar Cells. Journal of Green Engineering (discontinued), 2016, 5, 11-32.	0.7	3
35	Impact of built-in fields and contact configuration on the characteristics of ultra-thin GaAs solar cells. Applied Physics Letters, 2016, 109, 033906.	3.3	15
36	The nonequilibrium Greenâ€™s function picture of inelastic processes in nanostructure photovoltaics. Journal of Computational Electronics, 2016, 15, 1219-1232.	2.5	6

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37	Simulation of ultra-thin solar cells beyond the semi-classical bulk picture. , 2016, , .		1
38	Amorphous and Nanocrystalline Semiconductors. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 1638-1640.	1.8	2
39	Simulation of Ultrathin Solar Cells Beyond the Limits of the Semiclassical Bulk Picture. IEEE Journal of Photovoltaics, 2016, 6, 654-660.	2.5	20
40	Impact of Nanostructure Configuration on the Photovoltaic Performance of Quantum-Dot Arrays. Physical Review Applied, 2015, 4, .	3.8	14
41	Highly transparent front electrodes with metal fingers for p-i-n thin-film silicon solar cells. EPJ Photovoltaics, 2015, 6, 60501.	1.6	3
42	Simulation of absorption, photogeneration, and carrier extraction in nanostructure-based and ultra-thin film solar cell devices beyond the classical picture. , 2014, , .		5
43	Photon Greenâ€™s functions for a consistent theory of absorption and emission in nanostructure-based solar cell devices. Optical and Quantum Electronics, 2014, 46, 791-796.	3.3	12
44	Optically active defects in SiC, SiOx single layers and SiC/SiOx hetero-superlattices. Solar Energy Materials and Solar Cells, 2014, 129, 3-6.	6.2	3
45	Impact of doped microcrystalline silicon oxide layers on crystalline silicon surface passivation. Canadian Journal of Physics, 2014, 92, 758-762.	1.1	10
46	Quantum-kinetic theory of steady-state photocurrent generation in thin films: Coherent versus incoherent coupling. Physical Review B, 2014, 89, .	3.2	26
47	Electronic states of elongated PbSe/PbS Core/shell quantum dots. Journal of Physics: Conference Series, 2014, 526, 012010.	0.4	0
48	Introduction to the OQE special issue on numerical simulation of optoelectronic devices NUSODâ€™13. Optical and Quantum Electronics, 2014, 46, 1187-1187.	3.3	0
49	Simulation of nanostructure-based and ultra-thin film solar cell devices beyond the classical picture. Journal of Photonics for Energy, 2014, 4, 042099.	1.3	22
50	Photon Green's functions for a consistent theory of absorption and emission in nanostructure-based solar cell devices. , 2013, , .		0
51	Theoretical investigation of direct and phonon-assisted tunneling currents in InAlGaAs/InGaAs bulk and quantum-well interband tunnel junctions for multijunction solar cells. Physical Review B, 2013, 87, .	3.2	17
52	Simulation of Nanostructure-Based High-Efficiency Solar Cells: Challenges, Existing Approaches, and Future Directions. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 1-11.	2.9	17
53	Rigorous simulation of InAlGaAs-InGaAs bulk and quantum well interband tunnel junctions for multi-junction solar cells. , 2013, , .		1
54	Optimized amorphous silicon oxide buffer layers for silicon heterojunction solar cells with microcrystalline silicon oxide contact layers. Journal of Applied Physics, 2013, 113, 134501.	2.5	52

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55	Quantum-kinetic Theory of Defect-mediated Recombination in Nanostructure-based Photovoltaic Devices. Materials Research Society Symposia Proceedings, 2013, 1493, 91-96.	0.1	8
56	Wide Gap Microcrystalline Silicon Oxide Emitter for a-SiO_x:H/c-Si Heterojunction Solar Cells. Japanese Journal of Applied Physics, 2013, 52, 122304.	1.5	38
57	Developing Efficient Upconverter Silicon Solar Cell Devices. , 2013, , .		1
58	Nonequilibrium Green's function theory of coherent excitonic effects in the photocurrent response of semiconductor nanostructures. Physical Review B, 2012, 86, .	3.2	7
59	Fluorescence of colloidal PbSe/PbS QDs in NIR luminescent solar concentrators. Physical Chemistry Chemical Physics, 2012, 14, 16223.	2.8	40
60	Annealing induced defects in SiC, SiO_x single layers, and SiC/SiO_x heteroâ€superlattices. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 1960-1964.	1.8	7
61	Defect passivation by hydrogen reincorporation for silicon quantum dots in SiC/SiOx hetero-superlattice. Journal of Non-Crystalline Solids, 2012, 358, 2145-2149.	3.1	20
62	Silicon heterojunction solar cell with amorphous silicon oxide buffer and microcrystalline silicon oxide contact layers. Physica Status Solidi - Rapid Research Letters, 2012, 6, 193-195.	2.4	49
63	Effective microscopic theory of quantum dot superlattice solar cells. Optical and Quantum Electronics, 2012, 44, 133-140.	3.3	20
64	Quantum-kinetic theory of photocurrent generation via direct and phonon-mediated optical transitions. Physical Review B, 2011, 84, .	3.2	36
65	Improvement of hydrogenated microcrystalline (Î¼câ^'Si:H) single junction solar cells with upconverter at rear side.. Energy Procedia, 2011, 10, 76-82.	1.8	3
66	Silicon quantum dot formation in SiC/SiOx hetero-superlattice. Energy Procedia, 2011, 10, 249-254.	1.8	17
67	Theory and simulation of quantum photovoltaic devices based on the non-equilibrium Greenâ€™s function formalism. Journal of Computational Electronics, 2011, 10, 394-413.	2.5	72
68	Theory and simulation of photogeneration and transport in Si-SiO x superlattice absorbers. Nanoscale Research Letters, 2011, 6, 242.	5.7	33
69	Effective microscopic theory of quantum dot superlattice solar cells. , 2011, , .		1
70	Spectral properties of photogenerated carriers in quantum well solar cells. Solar Energy Materials and Solar Cells, 2010, 94, 1897-1902.	6.2	16
71	Microscopic theory and numerical simulation of quantum well solar cells. , 2010, , .		9
72	Microscopic nonequilibrium theory of quantum well solar cells. Physical Review B, 2008, 77, .	3.2	96

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73	Microscopic Theory of Coupled Quantum Well Structures in Photovoltaics. Materials Research Society Symposia Proceedings, 2008, 1101, 1.	0.1	0
74	Microscopic Modelling of Quantum Well Solar Cells. , 2007, , 237-240.		0
75	Effect of spin-orbit coupling on zero-conductance resonances in asymmetrically coupled one-dimensional rings. Physical Review B, 2005, 72, .	3.2	54