Charles A Schmuttenmaer

List of Publications by Year
in descending order

100 papers	8,150 citations	66315 42 h-index	53190 85 g-index
102 all docs	102 docs citations	102 times ranked	9887 citing authors

#	Article	IF	Citations
1	The 2017 terahertz science and technology roadmap. Journal Physics D: Applied Physics, 2017, 50, 043001.	1.3	1,160
2	Exploring Dynamics in the Far-Infrared with Terahertz Spectroscopy. Chemical Reviews, 2004, 104, 1759-1780.	23.0	576
3	Transient photoconductivity in GaAs as measured by time-resolved terahertz spectroscopy. Physical Review B, 2000, 62, 15764-15777.	1.1	460
4	Conductivity of ZnO Nanowires, Nanoparticles, and Thin Films Using Time-Resolved Terahertz Spectroscopyâ€. Journal of Physical Chemistry B, 2006, 110, 25229-25239.	1.2	372
5	Light-driven water oxidation for solar fuels. Coordination Chemistry Reviews, 2012, 256, 2503-2520.	9.5	337
6	Tutorial: An introduction to terahertz time domain spectroscopy (THz-TDS). Journal of Applied Physics, 2018, 124, .	1.1	333
7	A visible light water-splitting cell with a photoanode formed by codeposition of a high-potential porphyrin and an iridium water-oxidation catalyst. Energy and Environmental Science, 2011, 4, 2389.	15.6	257
8	A molecular catalyst for water oxidation that binds to metal oxide surfaces. Nature Communications, 2015, 6, 6469.	5.8	256
9	Facet-Dependent Photoelectrochemical Performance of TiO₂ Nanostructures: An Experimental and Computational Study. Journal of the American Chemical Society, 2015, 137, 1520-1529.	6.6	242
10	Exciton-like trap states limit electron mobility in TiO2 nanotubes. Nature Nanotechnology, 2010, 5, 769-772.	15.6	237
11	Carrier Localization and Cooling in Dye-Sensitized Nanocrystalline Titanium Dioxide. Journal of Physical Chemistry B, 2002, 106, 11716-11719.	1.2	219
12	Subpicosecond carrier dynamics in low-temperature grown GaAs as measured by time-resolved terahertz spectroscopy. Journal of Applied Physics, 2001, 90, 5915-5923.	1.1	209
13	Spectroscopy and dynamics of mixtures of water with acetone, acetonitrile, and methanol. Journal of Chemical Physics, 2000, 113, 11222-11236.	1.2	198
14	Synergistic effect between anatase and rutile TiO2 nanoparticles in dye-sensitized solar cells. Dalton Transactions, 2009, , 10078.	1.6	196
15	Acetylacetonate Anchors for Robust Functionalization of TiO₂Nanoparticles with Mn(II)â^'Terpyridine Complexes. Journal of the American Chemical Society, 2008, 130, 14329-14338.	6.6	151
16	Size-Dependent Photoconductivity in CdSe Nanoparticles as Measured by Time-Resolved Terahertz Spectroscopy. Nano Letters, 2002, 2, 983-987.	4.5	135
17	Plasmonic Enhancement of Dye-Sensitized Solar Cells Using Coreâ€“Shellâ€“Shell Nanostructures. Journal of Physical Chemistry C, 2013, 117, 927-934.	1.5	117
18	Hydroxamate Anchors for Improved Photoconversion in Dye-Sensitized Solar Cells. Inorganic Chemistry, 2013, 52, 6752-6764.	1.9	102

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19	Water-stable, hydroxamate anchors for functionalization of TiO2 surfaces with ultrafast interfacial electron transfer. Energy and Environmental Science, 2010, 3, 917.	15.6	99
20	Hydroxamate anchors for water-stable attachment to TiO2 nanoparticles. Energy and Environmental Science, 2009, 2, 1173.	15.6	91
21	Modular Assembly of High-Potential Zinc Porphyrin Photosensitizers Attached to TiO₂ with a Series of Anchoring Groups. Journal of Physical Chemistry C, 2013, 117, 14526-14533.	1.5	90
22	Ultrafast Carrier Dynamics in Nanostructures for Solar Fuels. Annual Review of Physical Chemistry, 2014, 65, 423-447.	4.8	89
23	Theory for determination of the low-frequency time-dependent response function in liquids using time-resolved terahertz pulse spectroscopy. Journal of Chemical Physics, 1999, 110, 8589-8596.	1.2	88
24	Electronic Tuning of Metal Nanoparticles for Highly Efficient Photocatalytic Hydrogen Peroxide Production. ACS Catalysis, 2019, 9, 626-631.	5.5	84
25	Ultrafast Photooxidation of Mn(II)â^'Terpyridine Complexes Covalently Attached to TiO₂ Nanoparticles. Journal of Physical Chemistry C, 2007, 111, 11982-11990.	1.5	82
26	Direct Evidence of Photoinduced Charge Transport Mechanism in 2D Conductive Metal Organic Frameworks. Journal of the American Chemical Society, 2020, 142, 21050-21058.	6.6	76
27	Intermolecular Vibrations in Hydrophobic Amino Acid Crystals: Experiments and Calculations. Journal of Physical Chemistry B, 2013, 117, 10444-10461.	1.2	73
28	Terahertz spectroscopy of enantiopure and racemic polycrystalline valine. Physical Chemistry Chemical Physics, 2011, 13, 11719.	1.3	70
29	Single-Atom Pt Catalyst for Effective Câ€“F Bond Activation via Hydrodefluorination. ACS Catalysis, 2018, 8, 9353-9358.	5.5	70
30	Bioinspired High-Potential Porphyrin Photoanodes. Journal of Physical Chemistry C, 2012, 116, 4892-4902.	1.5	69
31	Photocurrent Enhancement from Solid-State Tripletâ€“Triplet Annihilation Upconversion of Low-Intensity, Low-Energy Photons. ACS Photonics, 2016, 3, 784-790.	3.2	68
32	Highly Active NiO Photocathodes for H₂O₂ Production Enabled via Outer-Sphere Electron Transfer. Journal of the American Chemical Society, 2018, 140, 4079-4084.	6.6	66
33	Using the finite-difference time-domain pulse propagation method to simulate time-resolved THz experiments. Journal of Chemical Physics, 2001, 114, 2903-2909.	1.2	56
34	Dynamics of Electron Injection in SnO₂/TiO₂ Core/Shell Electrodes for Water-Splitting Dye-Sensitized Photoelectrochemical Cells. Journal of Physical Chemistry Letters, 2016, 7, 2930-2934.	2.1	56
35	Structure and dynamics of nonaqueous mixtures of dipolar liquids. I. Infrared and far-infrared spectroscopy. Journal of Chemical Physics, 2000, 113, 3243-3248.	1.2	55
36	Efficiency of Interfacial Electron Transfer from Zn-Porphyrin Dyes into TiO₂ Correlated to the Linker Single Molecule Conductance. Journal of Physical Chemistry C, 2013, 117, 24462-24470.	1.5	55

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37	Terahertz Spectroscopy of Emerging Materials. Journal of Physical Chemistry C, 2020, 124, 22335-22346.	1.5	55
38	Electron Injection Dynamics from Photoexcited Porphyrin Dyes into SnO2 and TiO2 Nanoparticles. Journal of Physical Chemistry C, 2013, 117, 21662-21670.	1.5	54
39	Rutile TiO₂ as an Anode Material for Water-Splitting Dye-Sensitized Photoelectrochemical Cells. ACS Energy Letters, 2016, 1, 603-606.	8.8	54
40	Structure and dynamics of nonaqueous mixtures of dipolar liquids. II. Molecular dynamics simulations. Journal of Chemical Physics, 2000, 113, 3249-3260.	1.2	51
41	Ultrafast Electron Injection Dynamics of Photoanodes for Water-Splitting Dye-Sensitized Photoelectrochemical Cells. Journal of Physical Chemistry C, 2016, 120, 5940-5948.	1.5	48
42	Interfacial electron transfer in photoanodes based on phosphorus(v) porphyrin sensitizers co-deposited on SnO2 with the Ir(III)Cp* water oxidation precatalyst. Journal of Materials Chemistry A, 2015, 3, 3868-3879.	5.2	47
43	Metalâ€“Organic Framework Photoconductivity via Time-Resolved Terahertz Spectroscopy. Journal of the American Chemical Society, 2019, 141, 9793-9797.	6.6	44
44	Nanotechnology for catalysis and solar energy conversion. Nanotechnology, 2021, 32, 042003.	1.3	44
45	Terahertz Spectroscopy and Density Functional Theory Calculations of <scp>dl</scp>-Norleucine and <scp>dl</scp>-Methionine. Journal of Physical Chemistry A, 2018, 122, 5978-5982.	1.1	40
46	Terahertz Spectroscopy of Tetrameric Peptides. Journal of Physical Chemistry Letters, 2019, 10, 2624-2628.	2.1	39
47	Electron Injection Dynamics in High-Potential Porphyrin Photoanodes. Accounts of Chemical Research, 2015, 48, 1423-1431.	7.6	37
48	Size-Dependent Ultrafast Charge Carrier Dynamics of WO₃ for Photoelectrochemical Cells. Journal of Physical Chemistry C, 2016, 120, 14926-14933.	1.5	35
49	Proton-Induced Trap States, Injection and Recombination Dynamics in Water-Splitting Dye-Sensitized Photoelectrochemical Cells. ACS Applied Materials & Interfaces, 2016, 8, 16727-16735.	4.0	35
50	Applicability of the thin-film approximation in terahertz photoconductivity measurements. Applied Physics Letters, 2018, 113, .	1.5	35
51	Computational Design of Intrinsic Molecular Rectifiers Based on Asymmetric Functionalization of N-Phenylbenzamide. Journal of Chemical Theory and Computation, 2015, 11, 5888-5896.	2.3	34
52	Optimization of Photoanodes for Photocatalytic Water Oxidation by Combining a Heterogenized Iridium Waterâ€Oxidation Catalyst with a Highâ€Potential Porphyrin Photosensitizer. ChemSusChem, 2017, 10, 4526-4534.	3.6	34
53	Controlling the rectification properties of molecular junctions through moleculeâ€“electrode coupling. Nanoscale, 2016, 8, 16357-16362.	2.8	33
54	Terahertz Spectroscopy of Histidine Enantiomers and Polymorphs. Journal of Infrared, Millimeter, and Terahertz Waves, 2011, 32, 691-698.	1.2	32

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55	Efficient measurement of broadband terahertz optical activity. Applied Physics Letters, 2012, 100, 241114.	1.5	31
56	Direct Interfacial Electron Transfer from High-Potential Porphyrins into Semiconductor Surfaces: A Comparison of Linkers and Anchoring Groups. Journal of Physical Chemistry C, 2018, 122, 13529-13539.	1.5	31
57	High-Potential Porphyrins Supported on SnO₂ and TiO₂ Surfaces for Photoelectrochemical Applications. Journal of Physical Chemistry C, 2016, 120, 28971-28982.	1.5	28
58	Exploring the solid state phase transition in <scp>dl</scp>-norvaline with terahertz spectroscopy. Physical Chemistry Chemical Physics, 2018, 20, 276-283.	1.3	26
59	Single Copper Atoms Enhance Photoconductivity in g-C₃N₄. Journal of Physical Chemistry Letters, 2020, 11, 8873-8879.	2.1	25
60	Antenna-Coupled Niobium Bolometers for Terahertz Spectroscopy. IEEE Transactions on Applied Superconductivity, 2007, 17, 412-415.	1.1	24
61	Functioning Photoelectrochemical Devices Studied with Time-Resolved Terahertz Spectroscopy. Journal of Physical Chemistry Letters, 2015, 6, 3257-3262.	2.1	24
62	Frequency-Dependent Terahertz Transient Photoconductivity of Mesoporous SnO₂ Films. Journal of Physical Chemistry C, 2017, 121, 15949-15956.	1.5	24
63	Interrogating Light-initiated Dynamics in Metalâ€“Organic Frameworks with Time-resolved Spectroscopy. Chemical Reviews, 2022, 122, 132-166.	23.0	22
64	Molecular design of light-harvesting photosensitizers: effect of varied linker conjugation on interfacial electron transfer. Physical Chemistry Chemical Physics, 2016, 18, 18678-18682.	1.3	21
65	A Terahertz-Transparent Electrochemical Cell for In Situ Terahertz Spectroelectrochemistry. Analytical Chemistry, 2018, 90, 4389-4396.	3.2	21
66	Linker Rectifiers for Covalent Attachment of Transitionâ€Metal Catalysts to Metalâ€Oxide Surfaces. ChemPhysChem, 2014, 15, 1138-1147.	1.0	20
67	Carrier dynamics in bulk ZnO. I. Intrinsic conductivity measured by terahertz time-domain spectroscopy. Physical Review B, 2009, 80, .	1.1	19
68	Carrier dynamics in bulk ZnO. II. Transient photoconductivity measured by time-resolved terahertz spectroscopy. Physical Review B, 2009, 80, .	1.1	17
69	Fluctuation-Induced Tunneling Conductivity in Nanoporous TiO₂ Thin Films. Journal of Physical Chemistry Letters, 2011, 2, 1931-1936.	2.1	17
70	Collaboration between experiment and theory in solar fuels research. Chemical Society Reviews, 2019, 48, 1865-1873.	18.7	17
71	A conductive metalâ€“organic framework photoanode. Chemical Science, 2020, 11, 9593-9603.	3.7	16
72	Nelly: A User-Friendly and Open-Source Implementation of Tree-Based Complex Refractive Index Analysis for Terahertz Spectroscopy. Analytical Chemistry, 2021, 93, 11243-11250.	3.2	15

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73	Linker Length-Dependent Electron-Injection Dynamics of Trimesitylporphyrins on SnO₂ Films. Journal of Physical Chemistry C, 2017, 121, 22690-22699.	1.5	13
74	Solvent Dependence of Lateral Charge Transfer in a Porphyrin Monolayer. ACS Energy Letters, 2017, 2, 168-173.	8.8	12
75	Terahertz spectroscopic polarimetry of generalized anisotropic media composed of Archimedean spiral arrays: Experiments and simulations. Journal of Chemical Physics, 2016, 144, 174705.	1.2	11
76	Surface-Induced Deprotection of THP-Protected Hydroxamic Acids on Titanium Dioxide. Journal of Physical Chemistry C, 2016, 120, 12495-12502.	1.5	11
77	Terahertz Spectroscopy and Density Functional Theory Investigation of the Dipeptide L-Carnosine. Journal of Infrared, Millimeter, and Terahertz Waves, 2020, 41, 1366-1377.	1.2	11
78	Optimization of Terahertz Metamaterials for Near-Field Sensing of Chiral Substances. IEEE Transactions on Terahertz Science and Technology, 2017, 7, 755-764.	2.0	10
79	Influence of Dye Sensitizers on Charge Dynamics in SnO₂ Nanoparticles Probed with THz Spectroscopy. Journal of Physical Chemistry C, 2020, 124, 3482-3488.	1.5	9
80	Structureâ€“function relationships in single molecule rectification by N-phenylbenzamide derivatives. New Journal of Chemistry, 2016, 40, 7373-7378.	1.4	7
81	Suspensions of Semiconducting Nanoparticles in Nafion for Transient Spectroscopy and Terahertz Photoconductivity Measurements. Analytical Chemistry, 2020, 92, 4187-4192.	3.2	7
82	Ultrafast proton-assisted tunneling through ZrO₂ in dye-sensitized SnO₂-core/ZrO₂-shell films. Chemical Communications, 2018, 54, 7971-7974.	2.2	5
83	Tuning the Conduction Band for Interfacial Electron Transfer: Dye-Sensitized Sn_xTi_{1â€“x}O₂ Photoanodes for Water Splitting. ACS Applied Energy Materials, 2021, 4, 4695-4703.	2.5	4
84	Ultrafast terahertz spectroscopy provides insight into charge transfer efficiency and dynamics in artificial photosynthesis. Photosynthesis Research, 2022, 151, 145-153.	1.6	2
85	A New Method for Measuring Intramolecular Charge Transfer. Science Progress, 2002, 85, 175-197.	1.0	1
86	Temperature-resolved terahertz time domain spectroscopy to investigate solid state phase-transitions in amino acid crystals. , 2017, , .		1
87	Identifying Peptide Structures with THz Spectroscopy. , 2018, , .		1
88	Interfacial electron transfer in dye-sensitized mixed metal oxides for water splitting. , 2019, , .		1
89	Terahertz Time Domain Spectroscopy and Density Functional Theory Calculations of Peptides. , 2020, , .		1
90	Optical pump â€” THz probe studies of size-dependent ultrafast charge carrier dynamics in WO<inf>3</inf> particles for photoelectrochemical cells. , 2016, , .		0

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91	Terahertz Conductivity in Proteins. , 2018, , .		0
92	THz Conductivity in Metal Organic Frameworks (MOF). , 2019, , .		0
93	Terahertz-Conductivity in Biological Nanowire-Networks. , 2019, , .		0
94	Towards Operando Electron Transfer Dynamics Measured Using Time-Resolved Terahertz Spectroelectrochemistry. , 2021, , .		0
95	THz-TDS and TRTS of Metal Organic Frameworks and 2D Materials. , 2021, , .		0
96	Photoinduced Charge Transport in Conductive Metal Organic Frameworks. , 2021, , .		0
97	Metal Dopants Increase THz-Photoconductivity in g-C3N4. , 2021, , .		0
98	Nelly: An Open-Source Package for Complex Refractive Index Extraction for Terahertz Spectroscopy on Layered Samples. , 2021, , .		0
99	A DIRECT MEASUREMENT OF INTERMOLECULAR SOLVATION DYNAMICS USING TIME-RESOLVED THZ SPECTROSCOPY (TRTS). , 2000, , .		0
100	THz Studies of Conductive Metal-Organic Frameworks. , 2020, , .		0