

# Michael S Freund

## List of Publications by Year in descending order

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118  
papers

5,457  
citations

81900

39  
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88630

70  
g-index

121  
all docs

121  
docs citations

121  
times ranked

6426  
citing authors

#	ARTICLE	IF	CITATIONS
1	Potentiometric Sensors Based on the Inductive Effect on the pKa of Poly(aniline): A Nonenzymatic Glucose Sensor. <i>Journal of the American Chemical Society</i> , 2001, 123, 3383-3384.	13.7	334
2	A chemically diverse conducting polymer-based "electronic nose".. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1995, 92, 2652-2656.	7.1	315
3	Polythiophene: From Fundamental Perspectives to Applications. <i>Chemistry of Materials</i> , 2017, 29, 10248-10283.	6.7	286
4	Electron Transfer Dynamics in Nanocrystalline Titanium Dioxide Solar Cells Sensitized with Ruthenium or Osmium Polypyridyl Complexes. <i>Journal of Physical Chemistry B</i> , 2001, 105, 392-403.	2.6	276
5	Potentiometric Saccharide Detection Based on the pKa Changes of Poly(aniline boronic acid). <i>Journal of the American Chemical Society</i> , 2002, 124, 12486-12493.	13.7	266
6	Reaction of Pyrrole and Chlorauric Acid A New Route to Composite Colloids. <i>Journal of the Electrochemical Society</i> , 2001, 148, D155.	2.9	209
7	Large Enhancement and Tunable Band Gap in Silicene by Small Organic Molecule Adsorption. <i>Journal of Physical Chemistry C</i> , 2014, 118, 23361-23367.	3.1	162
8	Air Oxidation of Self-Assembled Monolayers on Polycrystalline Gold: The Role of the Gold Substrate. <i>Langmuir</i> , 1998, 14, 6419-6423.	3.5	137
9	XPS spectra of uranyl minerals and synthetic uranyl compounds. I: The U 4f spectrum. <i>Geochimica Et Cosmochimica Acta</i> , 2009, 73, 2471-2487.	3.9	129
10	Porous Conducting Polymer/Heteropolyoxometalate Hybrid Material for Electrochemical Supercapacitor Applications. <i>Langmuir</i> , 2008, 24, 1064-1069.	3.5	117
11	A Switchable Self-Doped Polyaniline: Interconversion between Self-Doped and Non-Self-Doped Forms. <i>Journal of the American Chemical Society</i> , 2004, 126, 52-53.	13.7	112
12	Effect of electrode substrate on the morphology and selectivity of overoxidized polypyrrole films. <i>Analytical Chemistry</i> , 1991, 63, 622-626.	6.5	110
13	Use of Bipolar Membranes for Maintaining Steady-State pH Gradients in Membrane-Supported, Solar-Driven Water Splitting. <i>ChemSusChem</i> , 2014, 7, 3021-3027.	6.8	107
14	Mechanism of the carbon catalyzed reduction of nitrobenzene by hydrazine. <i>Carbon</i> , 2000, 38, 655-661.	10.3	100
15	Current developments in silicene and germanene. <i>Physica Status Solidi - Rapid Research Letters</i> , 2016, 10, 133-142.	2.4	99
16	Recent Advances in Bipolar Membrane Design and Applications. <i>Chemistry of Materials</i> , 2020, 32, 8060-8090.	6.7	96
17	Materials properties of out-of-plane heterostructures of MoS <sub>2</sub> -WSe <sub>2</sub> and WS <sub>2</sub> -MoSe <sub>2</sub> . <i>Applied Physics Letters</i> , 2016, 108, .	3.3	79
18	A Polypyrrole/Phosphomolybdic Acid-Poly(3,4-ethylenedioxythiophene)/Phosphotungstic Acid Asymmetric Supercapacitor. <i>Journal of the Electrochemical Society</i> , 2010, 157, A1030.	2.9	78

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19	XPS spectra of uranyl minerals and synthetic uranyl compounds. II: The O 1s spectrum. <i>Geochimica Et Cosmochimica Acta</i> , 2009, 73, 2488-2509.	3.9	77
20	Graphene Oxide as a Water Dissociation Catalyst in the Bipolar Membrane Interfacial Layer. <i>ACS Applied Materials &amp; Interfaces</i> , 2014, 6, 13790-13797.	8.0	77
21	Development of carbon dioxide (CO <sub>2</sub> ) sensor for grain quality monitoring. <i>Biosystems Engineering</i> , 2010, 106, 395-404.	4.3	71
22	A One-Step, Organic-Solvent Processable Synthesis of PEDOT Thin Films via <i>in Situ</i> Metastable Chemical Polymerization. <i>Macromolecules</i> , 2010, 43, 10241-10245.	4.8	71
23	Saccharide imprinting of poly(aniline boronic acid) in the presence of fluoride. <i>Analyst, The</i> , 2003, 128, 803.	3.5	70
24	A Wireless Passive Sensor for Temperature Compensated Remote pH Monitoring. <i>IEEE Sensors Journal</i> , 2013, 13, 2428-2436.	4.7	65
25	Membranes for artificial photosynthesis. <i>Energy and Environmental Science</i> , 2017, 10, 1320-1338.	30.8	65
26	New Approach for the Controlled Cross-Linking of Polyaniline: Synthesis and Characterization. <i>Macromolecules</i> , 1997, 30, 5660-5665.	4.8	63
27	A Novel Layer-by-Layer Approach for the Fabrication of Conducting Polymer/RNA Multilayer Films for Controlled Release. <i>Langmuir</i> , 2006, 22, 2811-2815.	3.5	60
28	Electrolytic actuators: Alternative, high-performance, material-based devices. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 7827-7831.	7.1	57
29	Anion-excluding polypyrrole films. <i>Talanta</i> , 1991, 38, 95-99.	5.5	56
30	Exploitation of spatiotemporal information and geometric optimization of signal/noise performance using arrays of carbon black-polymer composite vapor detectors. <i>Sensors and Actuators B: Chemical</i> , 2002, 82, 54-74.	7.8	56
31	Reactivity of Poly(anilineboronic acid) with NAD <sup>+</sup> and NADH. <i>Chemistry of Materials</i> , 2005, 17, 2918-2923.	6.7	55
32	Designing electronic/ionic conducting membranes for artificial photosynthesis. <i>Energy and Environmental Science</i> , 2011, 4, 1700.	30.8	53
33	Scanning tunneling microscopy and atomic force microscopy in the characterization of activated graphite electrodes. <i>Analytical Chemistry</i> , 1991, 63, 1047-1049.	6.5	46
34	Electrocatalytic functionalization of alkanes using aqueous platinum salts. <i>Journal of Molecular Catalysis</i> , 1994, 87, L11-L15.	1.2	46
35	Electroactivity of Electrochemically Synthesized Poly(Aniline Boronic Acid) as a Function of pH: Role of Self-Doping. <i>Chemistry of Materials</i> , 2004, 16, 1427-1432.	6.7	45
36	Electrically Engineered Band Gap in Two-Dimensional Ge, Sn, and Pb: A First-Principles and Tight-Binding Approach. <i>Journal of Physical Chemistry C</i> , 2015, 119, 11896-11902.	3.1	41

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37	Band gap modulation in polythiophene and polypyrrole-based systems. <i>Scientific Reports</i> , 2016, 6, 36554.	3.3	41
38	Transparent Bipolar Membrane for Water Splitting Applications. <i>ACS Applied Materials &amp; Interfaces</i> , 2017, 9, 26749-26755.	8.0	41
39	Self-Doped Polyaniline Nanoparticle Dispersions Based on Boronic Acid~Phosphate Complexation. <i>Macromolecules</i> , 2009, 42, 164-168.	4.8	40
40	Electrochemical and quartz crystal microbalance evidence for mediation and direct electrochemical reactions of small molecules at tetrathiafulvalene-te. <i>Journal of Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1990, 289, 127-141.	0.1	39
41	Structural and Electronic Properties of Pristine and Doped Polythiophene: Periodic versus Molecular Calculations. <i>Journal of Physical Chemistry C</i> , 2015, 119, 3979-3989.	3.1	39
42	Artificial Neural Network Processing of Stripping Analysis Responses for Identifying and Quantifying Heavy Metals in the Presence of Intermetallic Compound Formation. <i>Analytical Chemistry</i> , 1997, 69, 2373-2378.	6.5	38
43	Nucleophilic Substitution Reactions of Polyaniline with Substituted Benzenediazonium Ions: A Facile Method for Controlling the Surface Chemistry of Conducting Polymers. <i>Chemistry of Materials</i> , 1996, 8, 1164-1166.	6.7	37
44	A Review on Advanced Sensing Materials for Agricultural Gas Sensors. <i>Sensors</i> , 2021, 21, 3423.	3.8	35
45	Electrochemically Directed Self-Assembly on Gold. <i>Angewandte Chemie - International Edition</i> , 2000, 39, 1227-1230.	13.8	34
46	Ultramicroelectrode array behavior of one-dimensional organic conductor electrodes. <i>Analytical Chemistry</i> , 1989, 61, 1048-1052.	6.5	32
47	Reduced Graphene Oxide Bipolar Membranes for Integrated Solar Water Splitting in Optimal pH. <i>ChemSusChem</i> , 2015, 8, 2645-2654.	6.8	32
48	Highly Cross-Linked, Self-Doped Polyaniline Exhibiting Unprecedented Hardness. <i>Chemistry of Materials</i> , 2005, 17, 3803-3805.	6.7	31
49	Biogenic amine vapour detection using poly(anilineboronic acid) films. <i>Sensors and Actuators B: Chemical</i> , 2006, 115, 666-671.	7.8	31
50	Electrochemical Self-Assembly of Monolayers from Alkylthiosulfates on Gold. <i>Langmuir</i> , 2003, 19, 5246-5253.	3.5	30
51	Growth of thin processable films of poly(pyrrole) using phosphomolybdate clusters. <i>Inorganica Chimica Acta</i> , 1995, 240, 447-451.	2.4	27
52	Surface Structure of Single-Crystal MoS <sub>2</sub> (0002) and Cs/MoS <sub>2</sub> (0002) by X-ray Photoelectron Diffraction. <i>The Journal of Physical Chemistry</i> , 1996, 100, 10739-10745.	2.9	27
53	Conducting Poly(anilineboronic acid) Nanostructures: Controlled Synthesis and Characterization. <i>Macromolecular Chemistry and Physics</i> , 2008, 209, 1094-1105.	2.2	27
54	Characterization of volatile organic compounds released by granivorous insects in stored wheat. <i>Journal of Stored Products Research</i> , 2012, 48, 91-96.	2.6	24

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55	Semiintegral analysis in cyclic voltammetry: determination of surface excess and concentration in presence of weak adsorption and thin films. <i>The Journal of Physical Chemistry</i> , 1992, 96, 9400-9406.	2.9	23
56	Poly(aniline boronic acid): A New Precursor to Substituted Poly(aniline)s. <i>Langmuir</i> , 2001, 17, 7183-7185.	3.5	23
57	Fluid Embeddable Coupled Coil Sensor for Wireless pH Monitoring in a Bioreactor. <i>IEEE Transactions on Instrumentation and Measurement</i> , 2014, 63, 1337-1346.	4.7	23
58	Electrode Potential-Based Coupled Coil Sensor for Remote pH Monitoring. <i>IEEE Sensors Journal</i> , 2011, 11, 2813-2819.	4.7	22
59	Fabrication and Optimization of a Conducting Polymer Sensor Array Using Stored Grain Model Volatiles. <i>Journal of Agricultural and Food Chemistry</i> , 2012, 60, 2863-2873.	5.2	22
60	Indirect Electrochemical Detection of Type-B Trichothecene Mycotoxins. <i>Analytical Chemistry</i> , 1999, 71, 4075-4080.	6.5	21
61	Chemical diversity in electrochemically deposited conducting polymer-based sensor arrays. <i>Sensors and Actuators B: Chemical</i> , 2014, 202, 600-608.	7.8	20
62	Thermal Stability of High Molecular Weight Self-Doped Poly(anilineboronic acid). <i>Macromolecules</i> , 2005, 38, 10022-10026.	4.8	19
63	Substitution and Condensation Reactions with Poly(anilineboronic acid): Reactivity and Characterization of Thin Films. <i>Langmuir</i> , 2005, 21, 3670-3674.	3.5	19
64	Catalytic, Conductive Bipolar Membrane Interfaces through Layer-by-Layer Deposition for the Design of Membrane-Integrated Artificial Photosynthesis Systems. <i>ChemSusChem</i> , 2017, 10, 4599-4609.	6.8	19
65	Comparison between the electrical junction properties of H-terminated and methyl-terminated individual Si microwire/polymer assemblies for photoelectrochemical fuel production. <i>Energy and Environmental Science</i> , 2012, 5, 9789.	30.8	18
66	Electrical Characteristics of the Junction between PEDOT:PSS and Thiophene-Functionalized Silicon Microwires. <i>ACS Applied Materials &amp; Interfaces</i> , 2015, 7, 27160-27166.	8.0	18
67	Field-Induced Carrier Generation in Conjugated Polymer Semiconductors for Dynamic, Asymmetric Junctions. <i>Advanced Materials</i> , 2008, 20, 49-53.	21.0	17
68	Electrical Characterization of Si Microwires and of Si Microwire/Conducting Polymer Composite Junctions. <i>Journal of Physical Chemistry Letters</i> , 2011, 2, 675-680.	4.6	17
69	Irreversible electrocatalytic reduction of V(V) to V(IV) using phosphomolybdic acid. <i>Inorganic Chemistry</i> , 1994, 33, 1638-1643.	4.0	16
70	Doping-density dependence of scanning tunneling spectroscopy on lightly doped silicon. <i>Applied Physics Letters</i> , 1998, 72, 1993-1995.	3.3	15
71	Chemically diverse modified electrodes: A new approach to the design and implementation of sensor arrays. <i>Analytica Chimica Acta</i> , 1999, 397, 135-144.	5.4	15
72	Influence of Organic Solvents on the Kinetics of Electron Transfer and the Adsorption at Highly Oriented Pyrolytic Graphite. <i>Langmuir</i> , 2000, 16, 283-286.	3.5	15

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73	Characterization of the Electrical Properties of Individual p-Si Microwire/Polymer/n-Si Microwire Assemblies. <i>Journal of Physical Chemistry C</i> , 2011, 115, 24945-24950.	3.1	15
74	Electrochemically Assisted Self-Assembly of Alkylthiosulfates and Alkanethiols on Gold: The Role of Gold Oxide Formation and Corrosion. <i>Langmuir</i> , 2010, 26, 269-276.	3.5	14
75	Vapor-fed electrolysis of water using earth-abundant catalysts in Nafion or in bipolar Nafion/poly(benzimidazolium) membranes. <i>Sustainable Energy and Fuels</i> , 2019, 3, 3611-3626.	4.9	14
76	Elimination of spectral shifts associated with tip-induced band bending in scanning tunneling spectroscopy of lightly doped silicon. <i>Applied Physics Letters</i> , 1998, 73, 2462-2464.	3.3	13
77	Metastable Reaction Mixtures for the <i>in Situ</i> Polymerization of Conducting Polymers. <i>Macromolecules</i> , 2007, 40, 7166-7170.	4.8	13
78	Covalent Attachment of Ferrocene to Silicon Microwire Arrays. <i>ACS Applied Materials &amp; Interfaces</i> , 2015, 7, 26959-26967.	8.0	13
79	Electrically conducting collagen and collagen-mineral composites for current stimulation. <i>RSC Advances</i> , 2015, 5, 57318-57327.	3.6	13
80	pH Dependent Equilibria of Poly(anilineboronic acid)-Saccharide Complexation in Thin Films. <i>Macromolecular Chemistry and Physics</i> , 2006, 207, 660-664.	2.2	12
81	Dynamic resistive crossbar memory based on conjugated polymer composite. <i>Applied Physics Letters</i> , 2009, 94, 092113.	3.3	12
82	Dissolution of uranophane: An AFM, XPS, SEM and ICP study. <i>Geochimica Et Cosmochimica Acta</i> , 2009, 73, 2510-2533.	3.9	12
83	Investigation of Hydrogen Oxidation and Evolution Reactions at Porous Pt/C Electrodes in Nafion-Based Membrane Electrode Assemblies Using Impedance Spectroscopy and Distribution of Relaxation Times Analysis. <i>Journal of Physical Chemistry C</i> , 2022, 126, 132-150.	3.1	12
84	Progress in use of carbon-black-polymer composite vapor detector arrays for land mine detection. , 2000, , .		10
85	Compensation Doping in Conjugated Polymers: Engineering Dopable Heterojunctions for Modulating Conductivity in the Solid State. <i>Journal of the American Chemical Society</i> , 2009, 131, 15600-15601.	13.7	10
86	Polymer-based gas sensor on a thermally stable micro-cantilever. <i>Procedia Engineering</i> , 2010, 5, 21-24.	1.2	10
87	Piezoresistive characterization of bottom-up, n-type silicon microwires undergoing bend deformation. <i>Applied Physics Letters</i> , 2015, 106, 022107.	3.3	10
88	Measurement of the Electrical Resistance of n-Type Si Microwire/p-Type Conducting Polymer Junctions for Use in Artificial Photosynthesis. <i>Journal of Physical Chemistry C</i> , 2014, 118, 27742-27748.	3.1	9
89	Field enhanced charge carrier reconfiguration in electronic and ionic coupled dynamic polymer resistive memory. <i>Nanotechnology</i> , 2010, 21, 134003.	2.6	8
90	Novel Conducting Polymer-Heteropoly Acid Hybrid Material for Artificial Photosynthetic Membranes. <i>ACS Applied Materials &amp; Interfaces</i> , 2011, 3, 1003-1008.	8.0	8

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91	Chemically diverse sensor arrays based on electrochemically copolymerized pyrrole and styrene derivatives. <i>Sensors and Actuators B: Chemical</i> , 2015, 215, 510-517.	7.8	8
92	Electric and Photoelectric Properties of 3,4-Ethylenedioxythiophene-Functionalized n-Si/PEDOT:PSS Junctions. <i>ChemSusChem</i> , 2016, 9, 109-117.	6.8	8
93	Determination of ultramicroelectrode array dimensions at graphite and one-dimensional organic conductor electrodes using simulations, chronocoulometry and chronoamperometry. <i>Journal of Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1991, 300, 347-363.	0.1	7
94	Self-Assembly of Alkylthiosulfates on Gold: Role of Electrolyte and Trace Water in the Solvent. <i>Langmuir</i> , 2011, 27, 9028-9033.	3.5	7
95	Controlling volatility in solid-state, redox-based memory devices using heterojunction barriers to ion transport. <i>Chemical Communications</i> , 2012, 48, 9409.	4.1	7
96	Polymer-Based Chemicapacitor Sensor for 1-Octanol and Relative Humidity Detections at Different Temperatures and Frequencies. <i>IEEE Sensors Journal</i> , 2013, 13, 519-527.	4.7	7
97	Temporal responses of chemically diverse sensor arrays for machine olfaction using artificial intelligence. <i>Sensors and Actuators B: Chemical</i> , 2016, 231, 666-674.	7.8	7
98	Reversible and Efficient Materials-based Actuation by Electrolytic Phase Transformation. <i>Chemical Engineering and Technology</i> , 2003, 26, 1007-1011.	1.5	6
99	Carbon Black Polymer Sensor Array for Incipient Grain Spoilage Monitoring. <i>Agricultural Research</i> , 2012, 1, 87-94.	1.7	5
100	Observation of tip-induced gap states in lightly doped Si(100) using scanning tunneling spectroscopy. <i>Applied Physics Letters</i> , 1999, 74, 1105-1107.	3.3	3
101	A wireless passive pH sensor based on pH electrode potential measurement. , 2010, , .		3
102	Broadening the scope of <i>The Analyst</i> and fostering innovation. <i>Analyst</i> , The, 2004, 129, 283.	3.5	2
103	Wireless Passive Sensor for Remote pH Monitoring. <i>Journal of Nanotechnology in Engineering and Medicine</i> , 2011, 2, .	0.8	2
104	Polymer-Based Memory Structures on Copper Substrates. <i>Journal of the Electrochemical Society</i> , 2014, 161, D367-D371.	2.9	2
105	Monohydride signature as a key predictor of successful Si(110) surface functionalization. <i>RSC Advances</i> , 2016, 6, 88239-88243.	3.6	2
106	Analyte discrimination with chemically diverse sensor array based on electrocopolymerized pyrrole and vinyl derivatives. <i>RSC Advances</i> , 2016, 6, 32549-32559.	3.6	2
107	A reverse bias, tip-insulator-semiconductor tunnel diode model accounting for the delineation of a p/p+ junction using scanning tunneling microscopy. <i>Journal of Applied Physics</i> , 2000, 87, 4476-4482.	2.5	1
108	Array-based carbon black-polymer composite vapor detectors for detection of DNT in environments containing complex analyte mixtures. , 2001, 4394, 912.		1

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109	Photoexcitation of Intrinsic Plasmon in Emeraldine Electroactive Device. Journal of the Electrochemical Society, 2010, 157, H787.	2.9	1
110	Scaling and Anisotropic Conduction in Electrochemically Deposited Polypyrrole Hybrid Junctions. IEEE Electron Device Letters, 2011, 32, 815-817.	3.9	1
111	A wireless passive sensor for pH monitoring employing temperature compensation. , 2011, , .		1
112	An inductively coupled passive tag for remote basic volatile sensing. , 2014, , .		1
113	CHAPTER 17. Self-Doped Polymers. RSC Polymer Chemistry Series, 2013, , 359-386.	0.2	1
114	A PVT Compensated Resistance to Frequency Converter for Sensor Array Read-Out. IEEE Transactions on Circuits and Systems II: Express Briefs, 2022, 69, 2418-2422.	3.0	1
115	Array Based Carbon Black-Polymer Composite Vapor Detectors for Detection of DNT in Environments Containing Complex Analyte Mixtures. Materials Research Society Symposia Proceedings, 2001, 700, 411.	0.1	0
116	<title>Electrolytic phase transformation actuators</title>. , 2003, , .		0
117	An extended floating gate gas sensor using polypyrrole as a sensing polymer. , 2012, , .		0
118	Characterization of highâ€aspectâ€ratio periodic structures by Xâ€ray photoelectron spectroscopy. Surface and Interface Analysis, 2017, 49, 503-514.	1.8	0