

Michael L Free

List of Publications by Year in descending order

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120
papers

2,628
citations

218677

26
h-index

233421

45
g-index

127
all docs

127
docs citations

127
times ranked

2586
citing authors

#	ARTICLE	IF	CITATIONS
1	A review of surfactants as corrosion inhibitors and associated modeling. Progress in Materials Science, 2017, 90, 159-223.	32.8	270
2	Understanding the effect of surfactant aggregation on corrosion inhibition of mild steel in acidic medium. Corrosion Science, 2002, 44, 2865-2870.	6.6	156
3	CZTS thin films on transparent conducting electrodes by electrochemical technique. Thin Solid Films, 2012, 520, 1694-1697.	1.8	88
4	Light emitting diodes based on carbon dots derived from food, beverage, and combustion wastes. Physical Chemistry Chemical Physics, 2015, 17, 27642-27652.	2.8	87
5	Evaluation of Al ₃ Mg ₂ Precipitates and Mn-Rich Phase in Aluminum-Magnesium Alloy Based on Scanning Transmission Electron Microscopy Imaging. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 4933-4939.	2.2	79
6	Prediction and measurement of corrosion inhibition of mild steel using nonionic surfactants in chloride media. Corrosion Science, 2004, 46, 2601-2611.	6.6	72
7	The effects of surfactant concentration, adsorption, aggregation, and solution conditions on steel corrosion inhibition and associated modeling in aqueous media. Corrosion Science, 2016, 102, 233-250.	6.6	68
8	Demonstration of a sol-gel synthesized bifacial CZTS photoelectrochemical cell. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2861-2864.	1.8	67
9	Investigation of pre-existing particles in Al 5083 alloys. Journal of Alloys and Compounds, 2018, 740, 461-469.	5.5	61
10	Additive manufactured new hybrid high entropy alloys derived from the AlCoFeNiSmTiVZr system. Applied Surface Science, 2019, 476, 242-258.	6.1	60
11	Electrochemical measurement, modeling, and prediction of corrosion inhibition efficiency of ternary mixtures of homologous surfactants in salt solution. Corrosion Science, 2015, 98, 417-429.	6.6	59
12	A new corrosion inhibition model for surfactants that more closely accounts for actual adsorption than traditional models that assume physical coverage is proportional to inhibition. Corrosion Science, 2004, 46, 3101-3113.	6.6	54
13	Minimizing electron-hole pair recombination through band-gap engineering in novel ZnO-CeO ₂ -rGO ternary nanocomposite for photoelectrochemical and photocatalytic applications. Environmental Science and Pollution Research, 2020, 27, 25042-25056.	5.3	54
14	Temperature-dependent study of the Raman A mode of Cu ₂ ZnSnS ₄ thin films. Physica Status Solidi (B): Basic Research, 2011, 248, 2170-2174.	1.5	53
15	Quantum dots and carbon dots based fluorescent sensors for TB biomarkers detection. Vacuum, 2017, 146, 606-613.	3.5	46
16	The significance of collector colloid adsorption phenomena in the fluorite/oleate flotation system as revealed by FTIR/IRS and solution chemistry analysis. International Journal of Mineral Processing, 1996, 48, 197-216.	2.6	44
17	An investigation of rapidly synthesized Cu ₂ ZnSnS ₄ nanocrystals. Journal of Crystal Growth, 2013, 372, 87-94.	1.5	39
18	Kinetics of 18-Carbon Carboxylate Adsorption at the Fluorite Surface. Langmuir, 1997, 13, 4377-4382.	3.5	36

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19	Adsorption-coupled reduction mechanism in ZnO-Functionalized MWCNTs nanocomposite for Cr (VI) removal and improved anti-photocorrosion for photocatalytic reduction. Journal of Alloys and Compounds, 2020, 843, 155835.	5.5	36
20	Corrosion studies of single crystals of iron-gallium alloys in aqueous environments. Corrosion Science, 2007, 49, 4015-4027.	6.6	34
21	Synergetic effect of surface plasmon resonance and schottky junction in Ag-AgX-ZnO-rGO (X= Cl & amp;) Tj ETQq1 1 0.784314 rgBT / Physicochemical and Engineering Aspects, 2020, 595, 124684.	4.7	34
22	Capillarity Effect Controlled Precipitate Growth at the Grain Boundary of Long-Term Aging Al 5083 Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 4851-4862.	2.2	33
23	Experimental Investigation and Modeling of the Performance of Pure and Mixed Surfactant Inhibitors: Aggregation, Adsorption, and Corrosion Inhibition on Steel Pipe in Aqueous Phase. Journal of the Electrochemical Society, 2015, 162, C582-C591.	2.9	32
24	Characterization of Al-Mg Alloy Aged at Low Temperatures. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2017, 48, 2040-2050.	2.2	31
25	Characterization of the effects of different tempers and aging temperatures on the precipitation behavior of Al-Mg (5.25 at.%) -Mn alloys. Materials and Design, 2017, 118, 22-35.	7.0	30
26	Characterizing and modeling the precipitation of Mg-rich phases in Al 5xxx alloys aged at low temperatures. Journal of Materials Science and Technology, 2017, 33, 991-1003.	10.7	27
27	Geometrical modifications and tuning of optical and surface plasmon resonance behaviour of Au and Ag coated TiO ₂ nanotubular arrays. RSC Advances, 2015, 5, 70361-70370.	3.6	26
28	Simulation and Validation Studies of Impurity Particle Behavior in Copper Electrorefining. Journal of the Electrochemical Society, 2015, 162, E338-E352.	2.9	25
29	The effects of duty cycles on pulsed current electrodeposition of Zn Ni Al ₂ O ₃ composite on steel substrate: Microstructures, hardness and corrosion resistance. International Journal of Hydrogen Energy, 2017, 42, 20783-20790.	7.1	25
30	A Comparative Study of Co-electrodeposited Cu ₂ ZnSnS ₄ Absorber Material on Fluorinated Tin Oxide and Molybdenum Substrates. Journal of Electronic Materials, 2012, 41, 2210-2215.	2.2	24
31	Experimental investigation and modeling of the performance of pure and mixed surfactant inhibitors: Micellization and corrosion inhibition. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2016, 489, 407-422.	4.7	24
32	Experimental studies on impurity particle behavior in electrolyte and the associated distribution on the cathode in the process of copper electrorefining. Hydrometallurgy, 2015, 156, 232-238.	4.3	23
33	Experimental and Simulation Studies of Electrolyte Flow and Slime Particle Transport in a Pilot Scale Copper Electrorefining Cell. Journal of the Electrochemical Society, 2016, 163, E111-E122.	2.9	21
34	Integrated evaluation of mixed surfactant distribution in water-oil-steel pipe environments and associated corrosion inhibition efficiency. Corrosion Science, 2016, 110, 213-227.	6.6	21
35	High-efficiency lithium isotope separation in an electrochemical system with 1-butyl-3-methylimidazolium dicyanamide, 1-ethyl-3-methylimidazolium bis(trifluoromethylsulfonyl)imide, and diethyl carbonate as the solvents. Separation and Purification Technology, 2020, 253, 117539.	7.9	21
36	The effects of dopant impurities on Cu ₂ ZnSnS ₄ system Raman properties. Journal of Materials Science, 2015, 50, 1613-1623.	3.7	20

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37	Structural and Electrical Irregularities Caused by Selected Dopants in Black-Phosphorus. ECS Journal of Solid State Science and Technology, 2016, 5, Q3026-Q3032.	1.8	19
38	An evaluation of depletion layer photoactivity in Cu ₂ ZnSnS ₄ thin film. Thin Solid Films, 2012, 520, 4422-4426.	1.8	18
39	Experimental Investigation and Modeling of the Performance of Pure and Mixed Surfactant Inhibitors: Partitioning and Distribution in Water-Oil Environments. Journal of the Electrochemical Society, 2015, 162, C702-C717.	2.9	18
40	Synergistic effect of band convergence and carrier transport on enhancing the thermoelectric performance of Ga doped Cu ₂ Te at medium temperatures. Scientific Reports, 2019, 9, 8180.	3.3	18
41	Duality in Resistance Switching Behavior of TiO ₂ -Cu ₂ ZnSnS ₄ Device. ECS Journal of Solid State Science and Technology, 2015, 4, Q83-Q91.	1.8	17
42	Evaluation of Ion Effects on Surfactant Aggregation from Improved Molecular Thermodynamic Modeling. Industrial & Engineering Chemistry Research, 2015, 54, 9052-9056.	3.7	17
43	Dopants induced structural and optical anomalies of anisotropic edges of black phosphorous thin films and crystals. Ceramics International, 2016, 42, 13113-13127.	4.8	17
44	Experimental Studies of the Effects of Anode Composition and Process Parameters on Anode Slime Adhesion and Cathode Copper Purity by Performing Copper Electrorefining in a Pilot-Scale Cell. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2016, 47, 3178-3191.	2.1	17
45	Studies of Anode Slime Sintering/Coalescence and Its Effects on Anode Slime Adhesion and Cathode Purity in Copper Electrorefining. Journal of the Electrochemical Society, 2016, 163, E14-E31.	2.9	17
46	Phosphorus-Doped SnTe-Type Needle-like Crystals: Band Structure Modifications and Electronic Properties. Journal of Physical Chemistry C, 2017, 121, 18263-18273.	3.1	17
47	Investigation on Lithium Isotope Fractionation with Diffusion, Electrochemical Migration, and Electrochemical Isotope Effect in PEO-PC Based Gel Electrolyte. Journal of the Electrochemical Society, 2019, 166, E145-E152.	2.9	17
48	Production of copper from minerals through controlled and sustainable electrochemistry. Electrochimica Acta, 2014, 140, 447-456.	5.2	16
49	Fabrication and response of alpha-hydroxybutyrate sensors for rapid assessment of cardiometabolic disease risk. Biosensors and Bioelectronics, 2017, 89, 334-342.	10.1	16
50	Hybridized Tungsten Oxide Nanostructures for Food Quality Assessment: Fabrication and Performance Evaluation. Scientific Reports, 2018, 8, 3348.	3.3	16
51	Metal oxides and novel metallates coated stable engineered steel for corrosion resistance applications. Applied Surface Science, 2018, 456, 328-341.	6.1	16
52	The importance of temperature and viscosity effects for surfactant adsorption measurements made using the electrochemical quartz crystal microbalance. Journal of Colloid and Interface Science, 2003, 264, 402-406.	9.4	15
53	Enhanced Photoelectrochemical Response from Copper Antimony Zinc Sulfide Thin Films on Transparent Conducting Electrode. International Journal of Photoenergy, 2013, 2013, 1-7.	2.5	15
54	High-efficiency lithium isotope separation by electrochemical deposition and intercalation with electrochemical isotope effect in propylene carbonate and [BMIM][DCA] ionic liquid. Electrochimica Acta, 2020, 361, 137060.	5.2	15

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55	Augmented Z scheme blueprint for efficient solar water splitting system using quaternary chalcogenide absorber material. <i>Physical Chemistry Chemical Physics</i> , 2016, 18, 3788-3803.	2.8	14
56	Modeling and Experimental Validation of Electroplating Deposit Distributions from Copper Sulfate Solutions. <i>ECS Transactions</i> , 2014, 61, 27-36.	0.5	13
57	Phase-Field Modeling and Simulation of Gas Bubble Coalescence and Detachment in a Gas-Liquid Two-Phase Electrochemical System. <i>Journal of the Electrochemical Society</i> , 2020, 167, 013532.	2.9	13
58	Prediction and measurement of corrosion inhibition of mild steel by imidazolines in brine solutions. <i>Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science</i> , 2005, 36, 335-341.	2.1	12
59	A Comparative Study of Electrolyte Flow and Slime Particle Transport in a Newly Designed Copper Electrolytic Cell and a Laboratory-Scale Conventional Electrolytic Cell. <i>Jom</i> , 2017, 69, 1876-1887.	1.9	12
60	Recovery and Enhanced Upgrading of Rare Earth Elements from Coal-Based Resources: Bioleaching and Precipitation. <i>Minerals (Basel, Switzerland)</i> , 2021, 11, 484.	2.0	12
61	The use of electrochemical quartz crystal microbalance and surface tension measurements for the determination of octylamine and cetylpyridinium chloride adsorption in sodium chloride solutions. <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> , 2003, 226, 17-23.	4.7	11
62	Modeling Zinc Electrowinning for Current Efficiency Prediction Based on Nernst-Planck Equation and Electrode Gas Evolution Reaction Kinetics. <i>Journal of the Electrochemical Society</i> , 2018, 165, J3246-J3252.	2.9	11
63	A Comprehensive Review of Selected Major Categories of Lithium Isotope Separation Techniques. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2021, 218, 2100340.	1.8	11
64	Design, synthesis, and characterization of TPA-thiophene-based amide or imine functionalized molecule for potential optoelectronic devices. <i>Journal of Theoretical and Applied Physics</i> , 2013, 7, 4.	1.4	10
65	A Collector Plate Mechanism-Based Classical Intergranular Precipitation Model for Al Alloys Sensitized at Different Temperatures. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2015, 46, 5393-5406.	2.2	10
66	Simulation Study of Electrolyte Flow and Slime Particle Transport in a Newly Designed Copper Electrorefining Cell. <i>ECS Transactions</i> , 2016, 72, 23-42.	0.5	10
67	Design and analysis of direct side inflows in copper electrolytic cells by a computational method. <i>Hydrometallurgy</i> , 2017, 169, 612-620.	4.3	10
68	Li isotopes concentration flux investigation under conditions of diffusion and electric field assisted migration. <i>Vacuum</i> , 2018, 152, 291-300.	3.5	10
69	Elevated temperature corrosion resistance of additive manufactured single phase AlCoFeNiTiV0.9Sm0.1 and AlCoFeNiV0.9Sm0.1 HEAs in a simulated syngas atmosphere. <i>Additive Manufacturing</i> , 2019, 30, 100902.	3.0	10
70	Modifying the band-structure and properties of zirconium telluride using phosphorus addition. <i>Vacuum</i> , 2017, 146, 554-561.	3.5	9
71	Design and Modeling of an Innovative Copper Electrolytic Cell. <i>Journal of the Electrochemical Society</i> , 2018, 165, E798-E807.	2.9	9
72	Real-Time Detection of Thiols Using CoPc Modified Black-Phosphorus Based Sensors. <i>Journal of the Electrochemical Society</i> , 2019, 166, B1-B8.	2.9	9

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73	Prediction and measurement of mild steel corrosion inhibition by alkyl pyridinium chloride and alkyl trimethyl ammonium bromide surfactants in acidic chloride media. <i>Anti-Corrosion Methods and Materials</i> , 2003, 50, 186-192.	1.5	8
74	The Influence of Organic Additives on Surface Microroughness of Copper Deposits from Cuprous Solution under Potentiostatic Conditions. <i>Materials Transactions</i> , 2012, 53, 1695-1698.	1.2	8
75	Two-Phase Flow Modeling of Copper Electrowinning Involving Impurity Particles. <i>Journal of the Electrochemical Society</i> , 2017, 164, E233-E241.	2.9	8
76	Measurements and Simulations of Lithium Isotopes Concentration Fluxes during Electrolytic Lithium -7 Enrichment. <i>ECS Transactions</i> , 2018, 85, 79-87.	0.5	8
77	Frequency and atomic mass based selective electrochemical recovery of rare earth metals and isotopes. <i>Electrochimica Acta</i> , 2016, 219, 435-446.	5.2	7
78	Surface Texture-Induced Enhancement of Optical and Photoelectrochemical Activity of Cu ₂ ZnSnS ₄ Photocathodes. <i>Journal of Electronic Materials</i> , 2017, 46, 5308-5318.	2.2	7
79	Design, fabrication and evaluation of Fe-Mn-Mo-Zr-Ti-V-B type additive manufactured mixed metal boride ceramics. <i>Applied Surface Science Advances</i> , 2022, 9, 100247.	6.8	7
80	Adsorption and Desorption of Cetyl Pyridinium Ions at a Tungsten-Coated Silicon Wafer Surface. <i>Journal of Colloid and Interface Science</i> , 1998, 208, 104-109.	9.4	6
81	The electrochemical recovery of metallic palladium from spent electroless plating solution. <i>Jom</i> , 2009, 61, 27-30.	1.9	6
82	An Assessment of Contact Engineering for the Cu₂ZnSnS₄-Alternative Back Contact. <i>Materials Focus</i> , 2013, 2, 244-250.	0.4	6
83	Understanding the Agglomeration Behavior of Selected Copper Ores Using Statistical Design of Experiments. <i>Mineral Processing and Extractive Metallurgy Review</i> , 2015, 36, 13-25.	5.0	6
84	The Use of Surfactants to Enhance Particle Removal from Surfaces. , 2016, , 595-626.		6
85	Tin-tellurium-phosphide: Investigation of composition dependent band structure and its experimental realization. <i>Vacuum</i> , 2017, 146, 444-454.	3.5	6
86	Mechanism and Kinetics of Ammonium Sulfate Roasting of Boron-Bearing Iron Tailings for Enhanced Metal Extraction. <i>Processes</i> , 2019, 7, 812.	2.8	6
87	An Investigation of Nanocrystalline and Electrochemically Grown Cu ₂ ZnSnS ₄ Thin Film Using Redox Couples of Different Band Offset. <i>Journal of Spectroscopy</i> , 2013, 2013, 1-9.	1.3	5
88	Utility of by-product quantum dots obtained during synthesis of Cu ₂ ZnSnS ₄ colloidal ink. <i>Ceramics International</i> , 2014, 40, 859-869.	4.8	5
89	Review of Progress on Computational Modeling and Simulation of the Zinc Electrowinning Production Process. <i>Jom</i> , 2019, 71, 1623-1633.	1.9	5
90	The effect of PEO and organic sulfonates in enhancing phosphogypsum filtration. <i>International Journal of Mineral Processing</i> , 1999, 57, 25-42.	2.6	4

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91	Use of Electrochemical Noise Measurements for Determining the Rate of Corrosion and the Surfactant Aggregate Transition Concentration at the Mild Steel–Liquid Interface. <i>Adsorption Science and Technology</i> , 2004, 22, 155-164.	3.2	4
92	METTOP-BRX-Technology - Industrial Application. , 2012, , 61-75.		4
93	Anomalous electrical bistability in lateral grain rich polycrystalline molybdenum disulfide thin films. <i>Vacuum</i> , 2018, 155, 667-674.	3.5	4
94	Numerical Simulation of the Three-Phase Flow of a Bubble Interacting with the Steel–Slag Interface During the Secondary Refining Process. <i>Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science</i> , 2019, 50, 1542-1546.	2.1	4
95	Modeling Nickel Electrowinning with Electrode Diaphragms Based on Nernst-Planck Equation and a Volume Force Form of Darcy's Law. <i>Journal of the Electrochemical Society</i> , 2019, 166, D120-D130.	2.9	4
96	The fundamentals of electrometallurgy in aqueous media. <i>Jom</i> , 2007, 59, 28-33.	1.9	3
97	Evaluation of mass transport effects on the nucleation and growth of electrodeposits. <i>Institutions of Mining and Metallurgy Transactions Section C: Mineral Processing and Extractive Metallurgy</i> , 2013, 122, 223-228.	0.6	3
98	Portable Scanning Vertical Probes for Localized Electrochemical Properties and Defects Analysis. <i>Journal of the Electrochemical Society</i> , 2019, 166, E512-E520.	2.9	3
99	Platinum group metals: Past and present. <i>Jom</i> , 2001, 53, 10-10.	1.9	2
100	A Study of Increased Resistivity of FTO Back Contact for CZTS Based Absorber Material Grown by Electrodeposition-Annealing Route. <i>Materials Research Society Symposia Proceedings</i> , 2011, 1315, 1.	0.1	2
101	A factorial design of experiments approach to synthesize CZTS absorber material from aqueous media. <i>Materials Research Society Symposia Proceedings</i> , 2011, 1288, 1.	0.1	2
102	Bifacial photodetector using CZTS absorber material. , 2012, , .		2
103	Long-term Stability of Mixed Perovskites. <i>Materials Research Society Symposia Proceedings</i> , 2015, 1771, 193-198.	0.1	2
104	Performance of photovoltaic cells in different segments of spatial-spectral distributions. <i>Vacuum</i> , 2017, 146, 542-547.	3.5	2
105	The Use of Surfactants to Enhance Particle Removal from Surfaces. , 2008, , 727-758.		2
106	Evaluating and Enhancing Iron Removal via Filterable Iron Precipitates Formation during Coal-Waste Bioleaching. <i>Eng</i> , 2021, 2, 632-642.	2.4	2
107	Use of a New Particle Contact Probability Filtration Rate Model to Determine the Effect of Particle Size Distribution in Filtration. <i>Separation Science and Technology</i> , 1998, 33, 57-66.	2.5	1
108	Evaluation of mild steel corrosion using a new surfactant inhibition model. <i>Anti-Corrosion Methods and Materials</i> , 2006, 53, 12-18.	1.5	1

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109	Modification of Electronic and Vibrational Properties of Doped Black-P Films. MRS Advances, 2016, 1, 2285-2290.	0.9	1
110	Growth and examination of non-linear electrical behavior of bulk lead-tin-selenide. Vacuum, 2017, 146, 422-429.	3.5	1
111	Study of Tin Electrodeposition with Anion Exchange Membrane in Chloride Solution by a Computational Method. Journal of the Electrochemical Society, 2019, 166, E7-E21.	2.9	1
112	Extraction and Recovery of Rare-Earth Elements and Critical Materials from Coal Waste Using Low Cost Processing Methods: Acid Generation Using Acidithiobacillus Ferrooxidans Mediated Bio-Oxidation of Pyrite. Minerals, Metals and Materials Series, 2022, , 51-62.	0.4	1
113	Understanding and Modeling the Effect of Surfactants in Enhanced Particle Removal from Surfaces in Aqueous Media. Particulate Science and Technology, 2007, 25, 77-89.	2.1	0
114	Innovations in Hydrometallurgical and Electrometallurgical Processing: A TMS2012 Symposium Sampling. Jom, 2012, 64, 1277-1278.	1.9	0
115	A Comprehensive Model for Metal Electrowinning Processes. Minerals, Metals and Materials Series, 2018, , 1485-1495.	0.4	0
116	Growth and Capacitive Performance of Metals Engineered Tungsten Oxide Structures and Application in Colorant Sensors. MRS Advances, 2018, 3, 691-696.	0.9	0
117	Innovations and Insights in Fluid Flow and Slime Adhesion for Improved Copper Electrorefining. Minerals, Metals and Materials Series, 2017, , 25-33.	0.4	0
118	Electrochemical and Diffusion Assisted Dispersion Methods for Lithium-7 Enrichment from Liquid Media. Minerals, Metals and Materials Series, 2018, , 2575-2579.	0.4	0
119	The Use of Surfactants in Enhanced Particle Removal During Cleaning. , 2022, , 125-159.		0
120	Introduction to Surfactants. , 2022, , 1-53.		0