

# Michael L Free

## List of Publications by Year in descending order

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120  
papers

2,628  
citations

218677

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docs citations

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times ranked

2586  
citing authors

#	ARTICLE	IF	CITATIONS
1	The Use of Surfactants in Enhanced Particle Removal During Cleaning. , 2022, , 125-159.		0
2	Introduction to Surfactants. , 2022, , 1-53.		0
3	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
4	Design, fabrication and evaluation of Fe-Mn-Mo-Zr-Ti-V-B type additive manufactured mixed metal boride ceramics. Applied Surface Science Advances, 2022, 9, 100247.	6.8	7
5	Recovery and Enhanced Upgrading of Rare Earth Elements from Coal-Based Resources: Bioleaching and Precipitation. Minerals (Basel, Switzerland), 2021, 11, 484.	2.0	12
6	A Comprehensive Review of Selected Major Categories of Lithium Isotope Separation Techniques. Physica Status Solidi (A) Applications and Materials Science, 2021, 218, 2100340.	1.8	11
7	Evaluating and Enhancing Iron Removal via Filterable Iron Precipitates Formation during Coal-Waste Bioleaching. Eng, 2021, 2, 632-642.	2.4	2
8	Phase-Field Modeling and Simulation of Gas Bubble Coalescence and Detachment in a Gas-Liquid Two-Phase Electrochemical System. Journal of the Electrochemical Society, 2020, 167, 013532.	2.9	13
9	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
10	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
11	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
12	Minimizing electron-hole pair recombination through band-gap engineering in novel ZnO-CeO <sub>2</sub> -rGO ternary nanocomposite for photoelectrochemical and photocatalytic applications. Environmental Science and Pollution Research, 2020, 27, 25042-25056.	5.3	54
13	Synergetic effect of surface plasmon resonance and schottky junction in Ag-AgX-ZnO-rGO (X= Cl & amp; Tj ETQq1 1 0.784314 rgBT / Qv) Physicochemical and Engineering Aspects, 2020, 595, 124684.	4.7	34
14	Portable Scanning Vertical Probes for Localized Electrochemical Properties and Defects Analysis. Journal of the Electrochemical Society, 2019, 166, E512-E520.	2.9	3
15	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
16	Elevated temperature corrosion resistance of additive manufactured single phase AlCoFeNiTiV <sub>0.9</sub> Sm <sub>0.1</sub> and AlCoFeNiV <sub>0.9</sub> Sm <sub>0.1</sub> HEAs in a simulated syngas atmosphere. Additive Manufacturing, 2019, 30, 100902.	3.0	10
17	Synergistic effect of band convergence and carrier transport on enhancing the thermoelectric performance of Ga doped Cu <sub>2</sub> Te at medium temperatures. Scientific Reports, 2019, 9, 8180.	3.3	18
18	Numerical Simulation of the Three-Phase Flow of a Bubble Interacting with the Steel-Slag Interface During the Secondary Refining Process. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2019, 50, 1542-1546.	2.1	4

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19	Review of Progress on Computational Modeling and Simulation of the Zinc Electrowinning Production Process. <i>Jom</i> , 2019, 71, 1623-1633.	1.9	5
20	Modeling Nickel Electrowinning with Electrode Diaphragms Based on Nernst-Plank Equation and a Volume Force Form of Darcy's Law. <i>Journal of the Electrochemical Society</i> , 2019, 166, D120-D130.	2.9	4
21	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
22	Additive manufactured new hybrid high entropy alloys derived from the AlCoFeNiSmTiVZr system. <i>Applied Surface Science</i> , 2019, 476, 242-258.	6.1	60
23	Study of Tin Electrodeposition with Anion Exchange Membrane in Chloride Solution by a Computational Method. <i>Journal of the Electrochemical Society</i> , 2019, 166, E7-E21.	2.9	1
24	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
25	Hybridized Tungsten Oxide Nanostructures for Food Quality Assessment: Fabrication and Performance Evaluation. <i>Scientific Reports</i> , 2018, 8, 3348.	3.3	16
26	Investigation of pre-existing particles in Al 5083 alloys. <i>Journal of Alloys and Compounds</i> , 2018, 740, 461-469.	5.5	61
27	Li isotopes concentration flux investigation under conditions of diffusion and electric field assisted migration. <i>Vacuum</i> , 2018, 152, 291-300.	3.5	10
28	Design and Modeling of an Innovative Copper Electrolytic Cell. <i>Journal of the Electrochemical Society</i> , 2018, 165, E798-E807.	2.9	9
29	Modeling Zinc Electrowinning for Current Efficiency Prediction Based on Nernst-Plank Equation and Electrode Gas Evolution Reaction Kinetics. <i>Journal of the Electrochemical Society</i> , 2018, 165, J3246-J3252.	2.9	11
30	A Comprehensive Model for Metal Electrowinning Processes. <i>Minerals, Metals and Materials Series</i> , 2018, , 1485-1495.	0.4	0
31	Anomalous electrical bistability in lateral grain rich polycrystalline molybdenum disulfide thin films. <i>Vacuum</i> , 2018, 155, 667-674.	3.5	4
32	Growth and Capacitive Performance of Metals Engineered Tungsten Oxide Structures and Application in Colorant Sensors. <i>MRS Advances</i> , 2018, 3, 691-696.	0.9	0
33	Measurements and Simulations of Lithium Isotopes Concentration Fluxes during Electrolytic Lithium -7 Enrichment. <i>ECS Transactions</i> , 2018, 85, 79-87.	0.5	8
34	Metal oxides and novel metallates coated stable engineered steel for corrosion resistance applications. <i>Applied Surface Science</i> , 2018, 456, 328-341.	6.1	16
35	Electrochemical and Diffusion Assisted Dispersion Methods for Lithium-7 Enrichment from Liquid Media. <i>Minerals, Metals and Materials Series</i> , 2018, , 2575-2579.	0.4	0
36	Characterization of the effects of different tempers and aging temperatures on the precipitation behavior of Al-Mg (5.25 at.%)Mn alloys. <i>Materials and Design</i> , 2017, 118, 22-35.	7.0	30

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37	Characterizing and modeling the precipitation of Mg-rich phases in Al 5xxx alloys aged at low temperatures. <i>Journal of Materials Science and Technology</i> , 2017, 33, 991-1003.	10.7	27
38	Modifying the band-structure and properties of zirconium telluride using phosphorus addition. <i>Vacuum</i> , 2017, 146, 554-561.	3.5	9
39	Quantum dots and carbon dots based fluorescent sensors for TB biomarkers detection. <i>Vacuum</i> , 2017, 146, 606-613.	3.5	46
40	Surface Texture-Induced Enhancement of Optical and Photoelectrochemical Activity of Cu <sub>2</sub> ZnSnS <sub>4</sub> Photocathodes. <i>Journal of Electronic Materials</i> , 2017, 46, 5308-5318.	2.2	7
41	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
42	Tin-tellurium-phosphide: Investigation of composition dependent band structure and its experimental realization. <i>Vacuum</i> , 2017, 146, 444-454.	3.5	6
43	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
44	Performance of photovoltaic cells in different segments of spatial-spectral distributions. <i>Vacuum</i> , 2017, 146, 542-547.	3.5	2
45	Phosphorus-Doped SnTe-Type Needle-like Crystals: Band Structure Modifications and Electronic Properties. <i>Journal of Physical Chemistry C</i> , 2017, 121, 18263-18273.	3.1	17
46	Two-Phase Flow Modeling of Copper Electrorefining Involving Impurity Particles. <i>Journal of the Electrochemical Society</i> , 2017, 164, E233-E241.	2.9	8
47	The effects of duty cycles on pulsed current electrodeposition of Zn Ni Al <sub>2</sub> O <sub>3</sub> composite on steel substrate: Microstructures, hardness and corrosion resistance. <i>International Journal of Hydrogen Energy</i> , 2017, 42, 20783-20790.	7.1	25
48	Growth and examination of non-linear electrical behavior of bulk lead-tin-selenide. <i>Vacuum</i> , 2017, 146, 422-429.	3.5	1
49	A review of surfactants as corrosion inhibitors and associated modeling. <i>Progress in Materials Science</i> , 2017, 90, 159-223.	32.8	270
50	Characterization of Al-Mg Alloy Aged at Low Temperatures. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2017, 48, 2040-2050.	2.2	31
51	Fabrication and response of alpha-hydroxybutyrate sensors for rapid assessment of cardiometabolic disease risk. <i>Biosensors and Bioelectronics</i> , 2017, 89, 334-342.	10.1	16
52	Innovations and Insights in Fluid Flow and Slime Adhesion for Improved Copper Electrorefining. <i>Minerals, Metals and Materials Series</i> , 2017, , 25-33.	0.4	0
53	The Use of Surfactants to Enhance Particle Removal from Surfaces. , 2016, , 595-626.		6
54	Structural and Electrical Irregularities Caused by Selected Dopants in Black-Phosphorus. <i>ECS Journal of Solid State Science and Technology</i> , 2016, 5, Q3026-Q3032.	1.8	19

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55	Experimental and Simulation Studies of Electrolyte Flow and Slime Particle Transport in a Pilot Scale Copper Electrorefining Cell. <i>Journal of the Electrochemical Society</i> , 2016, 163, E111-E122.	2.9	21
56	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
57	Modification of Electronic and Vibrational Properties of Doped Black-P Films. <i>MRS Advances</i> , 2016, 1, 2285-2290.	0.9	1
58	Dopants induced structural and optical anomalies of anisotropic edges of black phosphorous thin films and crystals. <i>Ceramics International</i> , 2016, 42, 13113-13127.	4.8	17
59	Integrated evaluation of mixed surfactant distribution in water-oil-steel pipe environments and associated corrosion inhibition efficiency. <i>Corrosion Science</i> , 2016, 110, 213-227.	6.6	21
60	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
61	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. <i>Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science</i> , 2016, 47, 3178-3191.	2.1	17
62	Studies of Anode Slime Sintering/Coalescence and Its Effects on Anode Slime Adhesion and Cathode Purity in Copper Electrorefining. <i>Journal of the Electrochemical Society</i> , 2016, 163, E14-E31.	2.9	17
63	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
64	Experimental investigation and modeling of the performance of pure and mixed surfactant inhibitors: Micellization and corrosion inhibition. <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> , 2016, 489, 407-422.	4.7	24
65	The effects of surfactant concentration, adsorption, aggregation, and solution conditions on steel corrosion inhibition and associated modeling in aqueous media. <i>Corrosion Science</i> , 2016, 102, 233-250.	6.6	68
66	Long-term Stability of Mixed Perovskites. <i>Materials Research Society Symposia Proceedings</i> , 2015, 1771, 193-198.	0.1	2
67	Simulation and Validation Studies of Impurity Particle Behavior in Copper Electrorefining. <i>Journal of the Electrochemical Society</i> , 2015, 162, E338-E352.	2.9	25
68	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
69	The effects of dopant impurities on Cu <sub>2</sub> ZnSnS <sub>4</sub> system Raman properties. <i>Journal of Materials Science</i> , 2015, 50, 1613-1623.	3.7	20
70	Electrochemical measurement, modeling, and prediction of corrosion inhibition efficiency of ternary mixtures of homologous surfactants in salt solution. <i>Corrosion Science</i> , 2015, 98, 417-429.	6.6	59
71	Duality in Resistance Switching Behavior of TiO <sub>2</sub> -Cu <sub>2</sub> ZnSnS <sub>4</sub> Device. <i>ECS Journal of Solid State Science and Technology</i> , 2015, 4, Q83-Q91.	1.8	17
72	Experimental studies on impurity particle behavior in electrolyte and the associated distribution on the cathode in the process of copper electrorefining. <i>Hydrometallurgy</i> , 2015, 156, 232-238.	4.3	23

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73	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
74	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
75	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
76	Evaluation of Ion Effects on Surfactant Aggregation from Improved Molecular Thermodynamic Modeling. Industrial & Engineering Chemistry Research, 2015, 54, 9052-9056.	3.7	17
77	Geometrical modifications and tuning of optical and surface plasmon resonance behaviour of Au and Ag coated TiO <sub>2</sub> nanotubular arrays. RSC Advances, 2015, 5, 70361-70370.	3.6	26
78	Understanding the Agglomeration Behavior of Selected Copper Ores Using Statistical Design of Experiments. Mineral Processing and Extractive Metallurgy Review, 2015, 36, 13-25.	5.0	6
79	Modeling and Experimental Validation of Electroplating Deposit Distributions from Copper Sulfate Solutions. ECS Transactions, 2014, 61, 27-36.	0.5	13
80	Production of copper from minerals through controlled and sustainable electrochemistry. Electrochimica Acta, 2014, 140, 447-456.	5.2	16
81	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
82	Utility of by-product quantum dots obtained during synthesis of Cu <sub>2</sub> ZnSnS <sub>4</sub> colloidal ink. Ceramics International, 2014, 40, 859-869.	4.8	5
83	Design, synthesis, and characterization of TPA-thiophene-based amide or imine functionalized molecule for potential optoelectronic devices. Journal of Theoretical and Applied Physics, 2013, 7, 4.	1.4	10
84	An investigation of rapidly synthesized Cu <sub>2</sub> ZnSnS <sub>4</sub> nanocrystals. Journal of Crystal Growth, 2013, 372, 87-94.	1.5	39
85	An Assessment of Contact Engineering for the Cu<sub>2</sub>/>ZnSnS<sub>4</sub>-Alternative Back Contact. Materials Focus, 2013, 2, 244-250.	0.4	6
86	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
87	Evaluation of mass transport effects on the nucleation and growth of electrodeposits. Institutions of Mining and Metallurgy Transactions Section C: Mineral Processing and Extractive Metallurgy, 2013, 122, 223-228.	0.6	3
88	An Investigation of Nanocrystalline and Electrochemically Grown Cu <sub>2</sub> ZnSnS <sub>4</sub> Thin Film Using Redox Couples of Different Band Offset. Journal of Spectroscopy, 2013, 2013, 1-9.	1.3	5
89	The Influence of Organic Additives on Surface Microroughness of Copper Deposits from Cuprous Solution under Potentiostatic Conditions. Materials Transactions, 2012, 53, 1695-1698.	1.2	8
90	METTOP-BRX-Technology - Industrial Application. , 2012, , 61-75.		4

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91	Bifacial photodetector using CZTS absorber material. , 2012, , .		2
92	Evaluation of Al <sub>3</sub> Mg <sub>2</sub> 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
93	Innovations in Hydrometallurgical and Electrometallurgical Processing: A TMS2012 Symposium Sampling. Jom, 2012, 64, 1277-1278.	1.9	0
94	A Comparative Study of Co-electrodeposited Cu <sub>2</sub> ZnSnS <sub>4</sub> Absorber Material on Fluorinated Tin Oxide and Molybdenum Substrates. Journal of Electronic Materials, 2012, 41, 2210-2215.	2.2	24
95	CZTS thin films on transparent conducting electrodes by electrochemical technique. Thin Solid Films, 2012, 520, 1694-1697.	1.8	88
96	An evaluation of depletion layer photoactivity in Cu <sub>2</sub> ZnSnS <sub>4</sub> thin film. Thin Solid Films, 2012, 520, 4422-4426.	1.8	18
97	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
98	Temperature-dependent study of the Raman A mode of Cu <sub>2</sub> ZnSnS <sub>4</sub> thin films. Physica Status Solidi (B): Basic Research, 2011, 248, 2170-2174.	1.5	53
99	A Study of Increased Resistivity of FTO Back Contact for CZTS Based Absorber Material Grown by Electrodeposition-Annealing Route. Materials Research Society Symposia Proceedings, 2011, 1315, 1.	0.1	2
100	A factorial design of experiments approach to synthesize CZTS absorber material from aqueous media. Materials Research Society Symposia Proceedings, 2011, 1288, 1.	0.1	2
101	The electrochemical recovery of metallic palladium from spent electroless plating solution. Jom, 2009, 61, 27-30.	1.9	6
102	The Use of Surfactants to Enhance Particle Removal from Surfaces. , 2008, , 727-758.		2
103	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
104	Corrosion studies of single crystals of iron-gallium alloys in aqueous environments. Corrosion Science, 2007, 49, 4015-4027.	6.6	34
105	The fundamentals of electrometallurgy in aqueous media. Jom, 2007, 59, 28-33.	1.9	3
106	Evaluation of mild steel corrosion using a new surfactant inhibition model. Anti-Corrosion Methods and Materials, 2006, 53, 12-18.	1.5	1
107	Prediction and measurement of corrosion inhibition of mild steel by imidazolines in brine solutions. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2005, 36, 335-341.	2.1	12
108	Use of Electrochemical Noise Measurements for Determining the Rate of Corrosion and the Surfactant Aggregate Transition Concentration at the Mild Steel-Liquid Interface. Adsorption Science and Technology, 2004, 22, 155-164.	3.2	4

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109	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. <i>Corrosion Science</i> , 2004, 46, 3101-3113.	6.6	54
110	Prediction and measurement of corrosion inhibition of mild steel using nonionic surfactants in chloride media. <i>Corrosion Science</i> , 2004, 46, 2601-2611.	6.6	72
111	The importance of temperature and viscosity effects for surfactant adsorption measurements made using the electrochemical quartz crystal microbalance. <i>Journal of Colloid and Interface Science</i> , 2003, 264, 402-406.	9.4	15
112	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
113	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
114	Understanding the effect of surfactant aggregation on corrosion inhibition of mild steel in acidic medium. <i>Corrosion Science</i> , 2002, 44, 2865-2870.	6.6	156
115	Platinum group metals: Past and present. <i>Jom</i> , 2001, 53, 10-10.	1.9	2
116	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
117	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
118	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
119	Kinetics of 18-Carbon Carboxylate Adsorption at the Fluorite Surface. <i>Langmuir</i> , 1997, 13, 4377-4382.	3.5	36
120	The significance of collector colloid adsorption phenomena in the fluorite/oleate flotation system as revealed by FTIR/IRS and solution chemistry analysis. <i>International Journal of Mineral Processing</i> , 1996, 48, 197-216.	2.6	44