Martin Z Bazant

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/6319608/publications.pdf

Version: 2024-02-01

282 papers	28,375 citations	4388 86 h-index	5988 160 g-index
296 all docs	296 docs citations	296 times ranked	18505 citing authors

#	Article	IF	Citations
1	Data-driven prediction of battery cycle life before capacity degradation. Nature Energy, 2019, 4, 383-391.	39.5	1,237
2	Transition of lithium growth mechanisms in liquid electrolytes. Energy and Environmental Science, 2016, 9, 3221-3229.	30.8	1,054
3	Double Layer in Ionic Liquids: Overscreening versus Crowding. Physical Review Letters, 2011, 106, 046102.	7.8	828
4	Diffuse-charge dynamics in electrochemical systems. Physical Review E, 2004, 70, 021506.	2.1	822
5	Towards an understanding of induced-charge electrokinetics at large applied voltages in concentrated solutions. Advances in Colloid and Interface Science, 2009, 152, 48-88.	14.7	742
6	Theory of SEI Formation in Rechargeable Batteries: Capacity Fade, Accelerated Aging and Lifetime Prediction. Journal of the Electrochemical Society, 2013, 160, A243-A250.	2.9	682
7	Particle Size Dependence of the Ionic Diffusivity. Nano Letters, 2010, 10, 4123-4127.	9.1	641
8	Induced-charge electro-osmosis. Journal of Fluid Mechanics, 2004, 509, 217-252.	3.4	636
9	Steric effects in the dynamics of electrolytes at large applied voltages. I. Double-layer charging. Physical Review E, 2007, 75, 021502.	2.1	598
10	Induced-Charge Electrokinetic Phenomena: Theory and Microfluidic Applications. Physical Review Letters, 2004, 92, 066101.	7.8	588
11	Theory of Chemical Kinetics and Charge Transfer based on Nonequilibrium Thermodynamics. Accounts of Chemical Research, 2013, 46, 1144-1160.	15.6	529
12	Water electrolysis: from textbook knowledge to the latest scientific strategies and industrial developments. Chemical Society Reviews, 2022, 51, 4583-4762.	38.1	453
13	Induced-Charge Electrophoresis of Metallodielectric Particles. Physical Review Letters, 2008, 100, 058302.	7.8	427
14	Steric effects in the dynamics of electrolytes at large applied voltages. II. Modified Poisson-Nernst-Planck equations. Physical Review E, 2007, 75, 021503.	2.1	408
15	Interatomic potential for silicon defects and disordered phases. Physical Review B, 1998, 58, 2539-2550.	3.2	406
16	Suppression of Phase Separation in LiFePO₄ Nanoparticles During Battery Discharge. Nano Letters, 2011, 11, 4890-4896.	9.1	404
17	Origin and hysteresis of lithium compositional spatiodynamics within battery primary particles. Science, 2016, 353, 566-571.	12.6	367
18	Environment-dependent interatomic potential for bulk silicon. Physical Review B, 1997, 56, 8542-8552.	3.2	364

#	Article	IF	Citations
19	Liquid cell transmission electron microscopy observation of lithium metal growth and dissolution: Root growth, dead lithium and lithium flotsams. Nano Energy, 2017, 32, 271-279.	16.0	361
20	Coherency Strain and the Kinetics of Phase Separation in LiFePO₄ Nanoparticles. ACS Nano, 2012, 6, 2215-2225.	14.6	347
21	A guideline to limit indoor airborne transmission of COVID-19. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	313
22	Breaking symmetries in induced-charge electro-osmosis and electrophoresis. Journal of Fluid Mechanics, 2006, 560, 65.	3.4	293
23	Intercalation dynamics in rechargeable battery materials: General theory and phase-transformation waves in LiFePO4. Electrochimica Acta, 2008, 53, 7599-7613.	5.2	281
24	Current-induced transition from particle-by-particle to concurrent intercalation in phase-separating battery electrodes. Nature Materials, 2014, 13, 1149-1156.	27.5	274
25	Nonlinear dynamics of capacitive charging and desalination by porous electrodes. Physical Review E, 2010, 81, 031502.	2.1	271
26	Analysis of granular flow in a pebble-bed nuclear reactor. Physical Review E, 2006, 74, 021306.	2.1	266
27	Nonequilibrium Thermodynamics of Porous Electrodes. Journal of the Electrochemical Society, 2012, 159, A1967-A1985.	2.9	265
28	Attractive forces in microporous carbon electrodes for capacitive deionization. Journal of Solid State Electrochemistry, 2014, 18, 1365-1376.	2.5	256
29	Statistical error in particle simulations of hydrodynamic phenomena. Journal of Computational Physics, 2003, 187, 274-297.	3.8	239
30	Current-Voltage Relations for Electrochemical Thin Films. SIAM Journal on Applied Mathematics, 2005, 65, 1463-1484.	1.8	235
31	Critical Knowledge Gaps in Mass Transport through Single-Digit Nanopores: A Review and Perspective. Journal of Physical Chemistry C, 2019, 123, 21309-21326.	3.1	234
32	Induced-charge electrokinetic phenomena. Current Opinion in Colloid and Interface Science, 2010, 15, 203-213.	7.4	223
33	Effects of Nanoparticle Geometry and Size Distribution on Diffusion Impedance of Battery Electrodes. Journal of the Electrochemical Society, 2013, 160, A15-A24.	2.9	220
34	Overlimiting Current in a Microchannel. Physical Review Letters, 2011, 107, 118301.	7.8	217
35	Diffuse charge and Faradaic reactions in porous electrodes. Physical Review E, 2011, 83, 061507.	2.1	216
36	Time-dependent ion selectivity in capacitive charging of porous electrodes. Journal of Colloid and Interface Science, 2012, 384, 38-44.	9.4	213

#	Article	IF	Citations
37	Charge transfer kinetics at the solidâ€“solid interface in porous electrodes. Nature Communications, 2014, 5, 3585.	12.8	205
38	Internal resistance matching for parallel-connected lithium-ion cells and impacts on battery pack cycle life. Journal of Power Sources, 2014, 252, 8-13.	7.8	203
39	Revealing electrolyte oxidation via carbonate dehydrogenation on Ni-based oxides in Li-ion batteries by in situ Fourier transform infrared spectroscopy. Energy and Environmental Science, 2020, 13, 183-199.	30.8	202
40	A zincâ€“iron redox-flow battery under $100 per kW h of system capital cost. Energy and Environmental Science, 2015, 8, 2941-2945.	30.8	185
41	Fast ac electro-osmotic micropumps with nonplanar electrodes. Applied Physics Letters, 2006, 89, 143508.	3.3	181
42	Interactions between Lithium Growths and Nanoporous Ceramic Separators. Joule, 2018, 2, 2434-2449.	24.0	180
43	Membrane-less hydrogen bromine flow battery. Nature Communications, 2013, 4, 2346.	12.8	174
44	Tensorial hydrodynamic slip. Journal of Fluid Mechanics, 2008, 613, 125-134.	3.4	172
45	Size-Dependent Spinodal and Miscibility Gaps for Intercalation in Nanoparticles. Nano Letters, 2009, 9, 3795-3800.	9.1	170
46	Interplay of Lithium Intercalation and Plating on a Single Graphite Particle. Joule, 2021, 5, 393-414.	24.0	168
47	Theoretical prediction of fast 3D AC electro-osmotic pumps. Lab on A Chip, 2006, 6, 1455.	6.0	150
48	Unified nano-mechanics based probabilistic theory of quasibrittle and brittle structures: I. Strength, static crack growth, lifetime and scaling. Journal of the Mechanics and Physics of Solids, 2011, 59, 1291-1321.	4.8	150
49	Theory of Coherent Nucleation in Phase-Separating Nanoparticles. Nano Letters, 2013, 13, 3036-3041.	9.1	145
50	Experimental observation of induced-charge electro-osmosis around a metal wire in a microchannel. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2005, 267, 122-132.	4.7	140
51	Theory of the Double Layer in Water-in-Salt Electrolytes. Journal of Physical Chemistry Letters, 2018, 9, 5840-5846.	4.6	140
52	Effective Slip over Superhydrophobic Surfaces in Thin Channels. Physical Review Letters, 2009, 102, 026001.	7.8	139
53	Multiphase Porous Electrode Theory. Journal of the Electrochemical Society, 2017, 164, E3291-E3310.	2.9	138
54	Energetic, vibrational, and electronic properties of silicon using a nonorthogonal tight-binding model. Physical Review B, 2000, 62, 4477-4487.	3.2	137

#	Article	IF	Citations
55	Rate-Dependent Morphology of Li₂O₂ Growth in Liâ€“O₂ Batteries. Journal of Physical Chemistry Letters, 2013, 4, 4217-4222.	4.6	136
56	Current-Induced Membrane Discharge. Physical Review Letters, 2012, 109, 108301.	7.8	134
57	Electrochemistry and capacitive charging of porous electrodes in asymmetric multicomponent electrolytes. Russian Journal of Electrochemistry, 2012, 48, 580-592.	0.9	134
58	Evolution of the Solidâ€“Electrolyte Interphase on Carbonaceous Anodes Visualized by Atomic-Resolution Cryogenic Electron Microscopy. Nano Letters, 2019, 19, 5140-5148.	9.1	132
59	Effects of electrostatic correlations on electrokinetic phenomena. Physical Review E, 2012, 86, 056303.	2.1	126
60	Overlimiting Current and Shock Electrodialysis in Porous Media. Langmuir, 2013, 29, 16167-16177.	3.5	126
61	Electrochemical Thin Films at and above the Classical Limiting Current. SIAM Journal on Applied Mathematics, 2005, 65, 1485-1505.	1.8	125
62	Deionization shocks in microstructures. Physical Review E, 2011, 84, 061504.	2.1	125
63	Spatial dynamics of lithiation and lithium plating during high-rate operation of graphite electrodes. Energy and Environmental Science, 2020, 13, 2570-2584.	30.8	124
64	The Application of Data-Driven Methods and Physics-Based Learning for Improving Battery Safety. Joule, 2021, 5, 316-329.	24.0	123
65	Analysis of electrolyte transport through charged nanopores. Physical Review E, 2016, 93, 053108.	2.1	119
66	Strongly nonlinear dynamics of electrolytes in large ac voltages. Physical Review E, 2010, 82, 011501.	2.1	115
67	Analysis of diffuse-layer effects on time-dependent interfacial kinetics. Journal of Electroanalytical Chemistry, 2001, 500, 52-61.	3.8	114
68	Steric effects on ac electro-osmosis in dilute electrolytes. Physical Review E, 2008, 77, 036317.	2.1	114
69	Nonlinear electrochemical relaxation around conductors. Physical Review E, 2006, 74, 011501.	2.1	113
70	Modeling of Covalent Bonding in Solids by Inversion of Cohesive Energy Curves. Physical Review Letters, 1996, 77, 4370-4373.	7.8	112
71	Imposed currents in galvanic cells. Electrochimica Acta, 2009, 54, 4857-4871.	5.2	112
72	Hysteresis from Multiscale Porosity: Modeling Water Sorption and Shrinkage in Cement Paste. Physical Review Applied, 2015, 3, .	3.8	112

#	Article	IF	Citations
73	Experimental Verification of Overlimiting Current by Surface Conduction and Electro-Osmotic Flow in Microchannels. Physical Review Letters, 2015, 114, 114501.	7.8	112
74	Effective slip boundary conditions for arbitrary periodic surfaces: the surface mobility tensor. Journal of Fluid Mechanics, 2010, 658, 409-437.	3.4	109
75	Perspectiveâ€"Combining Physics and Machine Learning to Predict Battery Lifetime. Journal of the Electrochemical Society, 2021, 168, 030525.	2.9	107
76	Diffusion and Mixing in Gravity-Driven Dense Granular Flows. Physical Review Letters, 2004, 92, 174301.	7.8	105
77	Fluid-enhanced surface diffusion controls intraparticle phase transformations. Nature Materials, 2018, 17, 915-922.	27.5	104
78	Velocity profile of granular flows inside silos and hoppers. Journal of Physics Condensed Matter, 2005, 17, S2533-S2548.	1.8	102
79	Phase Transformation Dynamics in Porous Battery Electrodes. Electrochimica Acta, 2014, 146, 89-97.	5.2	101
80	Water purification by shock electrodialysis: Deionization, filtration, separation, and disinfection. Desalination, 2015, 357, 77-83.	8.2	101
81	Fictitious phase separation in Li layered oxides driven by electro-autocatalysis. Nature Materials, 2021, 20, 991-999.	27.5	101
82	Anisotropic electro-osmotic flow over super-hydrophobic surfaces. Journal of Fluid Mechanics, 2010, 644, 245-255.	3.4	100
83	Diffuse-charge effects on the transient response of electrochemical cells. Physical Review E, 2010, 81, 021503.	2.1	100
84	Scaling of strength and lifetime probability distributions of quasibrittle structures based on atomistic fracture mechanics. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 11484-11489.	7.1	94
85	Over-limiting Current and Control of Dendritic Growth by Surface Conduction in Nanopores. Scientific Reports, 2014, 4, 7056.	3.3	92
86	Li Intercalation into Graphite: Direct Optical Imaging and Cahnâ€"Hilliard Reaction Dynamics. Journal of Physical Chemistry Letters, 2016, 7, 2151-2156.	4.6	92
87	Thermodynamic stability of driven open systems and control of phase separation by electro-autocatalysis. Faraday Discussions, 2017, 199, 423-463.	3.2	88
88	Ultrafast high-pressure AC electro-osmotic pumps for portable biomedical microfluidics. Lab on A Chip, 2010, 10, 80-85.	6.0	86
89	Theory of water treatment by capacitive deionization with redox active porous electrodes. Water Research, 2018, 132, 282-291.	11.3	86
90	Electrochemical Kinetics of SEI Growth on Carbon Black: Part I. Experiments. Journal of the Electrochemical Society, 2019, 166, E97-E106.	2.9	85

#	Article	IF	Citations
91	Electrochemical ion insertion from the atomic to the device scale. Nature Reviews Materials, 2021, 6, 847-867.	48.7	84
92	Nonlinear electrokinetics at large voltages. New Journal of Physics, 2009, 11, 075016.	2.9	83
93	Simple formula for Marcusâ€“Hushâ€“Chidsey kinetics. Journal of Electroanalytical Chemistry, 2014, 735, 77-83.	3.8	82
94	Scalable and Continuous Water Deionization by Shock Electrodialysis. Environmental Science and Technology Letters, 2015, 2, 367-372.	8.7	78
95	End-of-life or second-life options for retired electric vehicle batteries. Cell Reports Physical Science, 2021, 2, 100537.	5.6	77
96	Electro-diffusion of ions in porous electrodes for capacitive extraction of renewable energy from salinity differences. Electrochimica Acta, 2013, 92, 304-314.	5.2	76
97	The effect of step height on the performance of three-dimensional ac electro-osmotic microfluidic pumps. Journal of Colloid and Interface Science, 2007, 309, 332-341.	9.4	73
98	Homogenization of the Poisson–Nernst–Planck equations for Ion Transport in Charged Porous Media. SIAM Journal on Applied Mathematics, 2015, 75, 1369-1401.	1.8	72
99	Intercalation Kinetics in Multiphase-Layered Materials. Journal of Physical Chemistry C, 2017, 121, 12505-12523.	3.1	71
100	Electrochemical Impedance Imaging via the Distribution of Diffusion Times. Physical Review Letters, 2018, 120, 116001.	7.8	71
101	Particle-Level Modeling of the Charge-Discharge Behavior of Nanoparticulate Phase-Separating Li-Ion Battery Electrodes. Journal of the Electrochemical Society, 2014, 161, A535-A546.	2.9	69
102	Interfacial Layering in the Electric Double Layer of Ionic Liquids. Physical Review Letters, 2020, 125, 116001.	7.8	69
103	Conformal mapping of some non-harmonic functions in transport theory. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2004, 460, 1433-1452.	2.1	67
104	Nonlinear dynamics of ion concentration polarization in porous media: The leaky membrane model. AICHE Journal, 2013, 59, 3539-3555.	3.6	66
105	A soft non-porous separator and its effectiveness in stabilizing Li metal anodes cycling at 10 mA cm^{â^'2} observed in situ in a capillary cell. Journal of Materials Chemistry A, 2017, 5, 4300-4307.	10.3	66
106	Guiding the Design of Heterogeneous Electrode Microstructures for Liâ€ion Batteries: Microscopic Imaging, Predictive Modeling, and Machine Learning. Advanced Energy Materials, 2021, 11, 2003908.	19.5	66
107	Electrochemical Kinetics of SEI Growth on Carbon Black: Part II. Modeling. Journal of the Electrochemical Society, 2019, 166, E107-E118.	2.9	65
108	Stochastic flow rule for granular materials. Physical Review E, 2007, 75, 041301.	2.1	64

#	Article	IF	Citations
109	Theory of coupled ion-electron transfer kinetics. Electrochimica Acta, 2021, 367, 137432.	5.2	64
110	Droplet breakup in flow past an obstacle: A capillary instability due to permeability variations. Europhysics Letters, 2010, 92, 54002.	2.0	63
111	Inducedâ€charge electrophoresis near a wall. Electrophoresis, 2011, 32, 614-628.	2.4	63
112	A physics-guided neural network framework for elastic plates: Comparison of governing equations-based and energy-based approaches. Computer Methods in Applied Mechanics and Engineering, 2021, 383, 113933.	6.6	63
113	Assessing continuum postulates in simulations of granular flow. Journal of the Mechanics and Physics of Solids, 2009, 57, 828-839.	4.8	62
114	Effect of concentration polarization on permselectivity. Physical Review E, 2014, 89, 012302.	2.1	61
115	Anisometric charge dependent swelling of porous carbon in an ionic liquid. Electrochemistry Communications, 2013, 34, 196-199.	4.7	59
116	In Situ Observation and Mathematical Modeling of Lithium Distribution within Graphite. Journal of the Electrochemical Society, 2017, 164, E3063-E3072.	2.9	58
117	Analysis of ionic conductance of carbon nanotubes. Physical Review E, 2016, 94, 050601.	2.1	57
118	Application of the Cell Potential Method To Predict Phase Equilibria of Multicomponent Gas Hydrate Systems. Journal of Physical Chemistry B, 2005, 109, 8153-8163.	2.6	53
119	Diffuse Charge Effects in Fuel Cell Membranes. Journal of the Electrochemical Society, 2009, 156, B225.	2.9	53
120	Small-scale desalination of seawater by shock electrodialysis. Desalination, 2020, 476, 114219.	8.2	52
121	Electrostatic and electrokinetic contributions to the elastic moduli of a driven membrane. European Physical Journal E, 2009, 28, 243-264.	1.6	51
122	Bayesian learning for rapid prediction of lithium-ion battery-cycling protocols. Joule, 2021, 5, 3187-3203.	24.0	51
123	Thermodynamics of Ion Separation by Electrosorption. Environmental Science & Technology, 2018, 52, 10196-10204.	10.0	50
124	Theory of ion aggregation and gelation in super-concentrated electrolytes. Journal of Chemical Physics, 2020, 152, 234506.	3.0	49
125	Largest cluster in subcritical percolation. Physical Review E, 2000, 62, 1660-1669.	2.1	48
126	Dip-coating of suspensions. Soft Matter, 2019, 15, 252-261.	2.7	48

#	Article	IF	Citations
127	Theory of Surface Forces in Multivalent Electrolytes. Langmuir, 2019, 35, 11550-11565.	3.5	47
128	Efficient Conservative Numerical Schemes for 1D Nonlinear Spherical Diffusion Equations with Applications in Battery Modeling. Journal of the Electrochemical Society, 2013, 160, A1565-A1571.	2.9	46
129	Phase Separation Dynamics in Isotropic Ion-Intercalation Particles. SIAM Journal on Applied Mathematics, 2014, 74, 980-1004.	1.8	46
130	Continuum Theory of Electrostatic Correlations at Charged Surfaces. Journal of Physical Chemistry C, 2020, 124, 11414-11421.	3.1	46
131	The Spot Model for random-packing dynamics. Mechanics of Materials, 2006, 38, 717-731.	3.2	45
132	Topology and shape optimization of induced-charge electro-osmotic micropumps. New Journal of Physics, 2009, 11, 075019.	2.9	45
133	Soft Multifaced and Patchy Colloids by Constrained Volume Self-Assembly. Macromolecules, 2016, 49, 3580-3585.	4.8	45
134	Dendrite Suppression by Shock Electrodeposition in Charged Porous Media. Scientific Reports, 2016, 6, 28054.	3.3	45
135	Front Dynamics during Diffusion-Limited Corrosion of Ramified Electrodeposits. Journal of Physical Chemistry B, 1999, 103, 5841-5851.	2.6	44
136	Sulfur point defects in crystalline and amorphous silicon. Physical Review B, 2004, 70, .	3.2	44
137	Electrodiffusiophoresis: Particle motion in electrolytes under direct current. Physics of Fluids, 2010, 22, 112109.	4.0	44
138	Boundary Layer Analysis of Membraneless Electrochemical Cells. Journal of the Electrochemical Society, 2013, 160, A2056-A2063.	2.9	44
139	Breakdown of electroneutrality in nanopores. Journal of Colloid and Interface Science, 2020, 579, 162-176.	9.4	44
140	Thermodynamic behavior of a model covalent material described by the environment-dependent interatomic potential. Physical Review B, 2002, 66, .	3.2	43
141	Toward Optimal Performance and Inâ€Depth Understanding of Spinel Li₄Ti₅O₁₂ Electrodes through Phase Field Modeling. Advanced Functional Materials, 2018, 28, 1705992.	14.9	43
142	Lithiumâ€Battery Anode Gains Additional Functionality for Neuromorphic Computing through Metalâ€“Insulator Phase Separation. Advanced Materials, 2020, 32, e1907465.	21.0	43
143	A scaling law to determine phase morphologies during ion intercalation. Energy and Environmental Science, 2020, 13, 2142-2152.	30.8	43
144	Theory of sorption hysteresis in nanoporous solids: Part I. Journal of the Mechanics and Physics of Solids, 2012, 60, 1644-1659.	4.8	41

#	Article	IF	Citations
145	Theory of sorption hysteresis in nanoporous solids: Part II Molecular condensation. Journal of the Mechanics and Physics of Solids, 2012, 60, 1660-1675.	4.8	41
146	Size-dependent phase morphologies in LiFePO4 battery particles. Electrochemistry Communications, 2018, 95, 33-37.	4.7	40
147	Modeling the Metalâ€“Insulator Phase Transition in Li_xCoO₂ for Energy and Information Storage. Advanced Functional Materials, 2019, 29, 1902821.	14.9	40
148	Active control of viscous fingering using electric fields. Nature Communications, 2019, 10, 4002.	12.8	40
149	Transverse flow in thin superhydrophobic channels. Physical Review E, 2010, 82, 055301.	2.1	39
150	Continuous Separation of Radionuclides from Contaminated Water by Shock Electrodialysis. Environmental Science & Technology, 2019, 54, 527-536.	10.0	39
151	Multicomponent Gas Diffusion in Porous Electrodes. Journal of the Electrochemical Society, 2015, 162, F613-F621.	2.9	38
152	Multiscale poromechanics of wet cement paste. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 10652-10657.	7.1	38
153	Cation-Dependent Interfacial Structures and Kinetics for Outer-Sphere Electron-Transfer Reactions. Journal of Physical Chemistry C, 2021, 125, 4397-4411.	3.1	38
154	Surface conservation laws at microscopically diffuse interfaces. Journal of Colloid and Interface Science, 2007, 315, 319-329.	9.4	37
155	Effective zero-thickness model for a conductive membrane driven by an electric field. Physical Review E, 2010, 81, 031912.	2.1	37
156	ElectrokineticsÂmeets electrohydrodynamics. Journal of Fluid Mechanics, 2015, 782, 1-4.	3.4	37
157	Electrokinetic Control of Viscous Fingering. Physical Review Letters, 2017, 119, 174501.	7.8	37
158	Explaining key properties of lithiation in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>TiO</mml:mi><mml:mn>2</mml:mn></mml:msub></mml -anatase Li-ion battery electrodes using phase-field modeling. Physical Review Materials, 2017, 1, .	2.4	37
159	Dynamics of Conformal Maps for a Class of Non-Laplacian Growth Phenomena. Physical Review Letters, 2003, 91, 045503.	7.8	36
160	Phase-Transformation Wave Dynamics in LiFePO₄. Solid State Phenomena, 0, 139, 95-100.	0.3	36
161	Dynamics of random packings in granular flow. Physical Review E, 2006, 73, 051306.	2.1	35
162	Theory of linear sweep voltammetry with diffuse charge: Unsupported electrolytes, thin films, and leaky membranes. Physical Review E, 2017, 95, 033303.	2.1	35

#	Article	IF	Citations
163	Inferring pore connectivity from sorption hysteresis in multiscale porous media. Journal of Colloid and Interface Science, 2018, 532, 118-127.	9.4	35
164	Fast charging design for Lithium-ion batteries via Bayesian optimization. Applied Energy, 2022, 307, 118244.	10.1	35
165	Regulation of ramified electrochemical growth by a diffusive wave. Physical Review E, 1995, 52, 1903-1914.	2.1	34
166	Elastic constants of defected and amorphous silicon with the environment-dependent interatomic potential. Physical Review B, 2004, 70, .	3.2	34
167	Novel ionic separation mechanisms in electrically driven membrane processes. Advances in Colloid and Interface Science, 2020, 284, 102269.	14.7	34
168	Analysis, Design, and Generalization of Electrochemical Impedance Spectroscopy (EIS) Inversion Algorithms. Journal of the Electrochemical Society, 2020, 167, 106508.	2.9	34
169	Learning the Physics of Pattern Formation from Images. Physical Review Letters, 2020, 124, 060201.	7.8	34
170	Asymptotics of reactionâ€“diffusion fronts with one static and one diffusing reactant. Physica D: Nonlinear Phenomena, 2000, 147, 95-121.	2.8	32
171	A method to extract potentials from the temperature dependence of Langmuir constants for clathrate-hydrates. Physica A: Statistical Mechanics and its Applications, 2001, 300, 139-173.	2.6	32
172	Monitoring carbon dioxide to quantify the risk of indoor airborne transmission of COVID-19. Flow, 2021, 1, .	2.6	32
173	Ion Clusters and Networks in Water-in-Salt Electrolytes. Journal of the Electrochemical Society, 2021, 168, 050514.	2.9	31
174	Steady advectionâ€“diffusion around finite absorbers in two-dimensional potential flows. Journal of Fluid Mechanics, 2005, 536, 155-184.	3.4	30
175	Simple formula for asymmetric Marcusâ€“Hush kinetics. Journal of Electroanalytical Chemistry, 2015, 748, 52-57.	3.8	30
176	Subcritical crack growth law and its consequences for lifetime statistics and size effect of quasibrittle structures. Journal Physics D: Applied Physics, 2009, 42, 214008.	2.8	29
177	Heterogeneous electrocatalysis in porous cathodes of solid oxide fuel cells. Electrochimica Acta, 2015, 159, 71-80.	5.2	29
178	Continuous ionâ€selective separations by shock electrodialysis. AICHE Journal, 2020, 66, e16751.	3.6	28
179	Interplay of phase boundary anisotropy and electro-auto-catalytic surface reactions on the lithium intercalation dynamics in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Li</mml:mi><mml:mi>X</mml:mi></mml:ms plateletlike nanoparticles. Physical Review Materials, 2018, 2, .	2.4	28
180	Correlative image learning of chemo-mechanics in phase-transforming solids. Nature Materials, 2022, 21, 547-554.	27.5	27

#	Article	IF	Citations
181	Impact of network heterogeneity on electrokinetic transport in porous media. Journal of Colloid and Interface Science, 2019, 553, 451-464.	9.4	26
182	Exact solutions of the Navierâ€“Stokes equations having steady vortex structures. Journal of Fluid Mechanics, 2005, 541, 55.	3.4	25
183	Methodsâ€”PETLION: Open-Source Software for Millisecond-Scale Porous Electrode Theory-Based Lithium-Ion Battery Simulations. Journal of the Electrochemical Society, 2021, 168, 090504.	2.9	25
184	Selective adsorption of organic anions in a flow cell with asymmetric redox active electrodes. Water Research, 2020, 182, 115963.	11.3	25
185	Design principle for improved three-dimensional ac electro-osmotic pumps. Physical Review E, 2008, 77, 055303.	2.1	24
186	Finite-temperature molecular-dynamics study of unstable stacking fault free energies in silicon. Physical Review B, 1998, 58, 12555-12558.	3.2	23
187	Understanding the electrochemical behaviour of LSM-based SOFC cathodes. Part II - Mechanistic modelling and physically-based interpretation. Solid State Ionics, 2017, 303, 181-190.	2.7	23
188	Modeling and multiobjective optimization of indoor airborne disease transmission risk and associated energy consumption for building HVAC systems. Energy and Buildings, 2021, 253, 111497.	6.7	23
189	Exact solutions and physical analogies for unidirectional flows. Physical Review Fluids, 2016, 1, .	2.5	23
190	Membraneless flow battery leveraging flow-through heterogeneous porous media for improved power density and reduced crossover. RSC Advances, 2016, 6, 100209-100213.	3.6	22
191	Capillary filtering of particles during dip coating. Physical Review Fluids, 2019, 4, .	2.5	22
192	Structural Forces in Ionic Liquids: The Role of Ionic Size Asymmetry. Journal of Physical Chemistry B, 2022, 126, 1242-1253.	2.6	21
193	Salt-in-Ionic-Liquid Electrolytes: Ion Network Formation and Negative Effective Charges of Alkali Metal Cations. Journal of Physical Chemistry B, 2021, 125, 13752-13766.	2.6	21
194	Linear Stability Analysis of Transient Electrodeposition in Charged Porous Media: Suppression of Dendritic Growth by Surface Conduction. Journal of the Electrochemical Society, 2019, 166, A2280-A2299.	2.9	20
195	The stochastic flow rule: a multi-scale model for granular plasticity. Modelling and Simulation in Materials Science and Engineering, 2007, 15, S449-S464.	2.0	19
196	Electrochemical Impedance of a Battery Electrode with Anisotropic Active Particles. Electrochimica Acta, 2014, 131, 214-227.	5.2	19
197	Performance and Degradation of A Lithium-Bromine Rechargeable Fuel Cell Using Highly Concentrated Catholytes. Electrochimica Acta, 2016, 202, 216-223.	5.2	19
198	In-situ visualization of solute-driven phase coexistence within individual nanorods. Nature Communications, 2018, 9, 1775.	12.8	19

#	Article	IF	Citations
199	Population dynamics of driven autocatalytic reactive mixtures. Physical Review E, 2019, 100, 012144.	2.1	19
200	The Materials Research Platform: Defining the Requirements from User Stories. Matter, 2019, 1, 1433-1438.	10.0	19
201	Ionic activity in concentrated electrolytes: Solvent structure effect revisited. Chemical Physics Letters, 2020, 738, 136915.	2.6	19
202	Tuning the stability of electrochemical interfaces by electron transfer reactions. Journal of Chemical Physics, 2020, 152, 184703.	3.0	19
203	Large-deformation plasticity and fracture behavior of pure lithium under various stress states. Acta Materialia, 2021, 208, 116730.	7.9	19
204	Nonlinear Identifiability Analysis of the Porous Electrode Theory Model of Lithium-Ion Batteries. Journal of the Electrochemical Society, 2021, 168, 090546.	2.9	19
205	A dual-mode rechargeable lithiumâ€“bromine/oxygen fuel cell. Journal of Materials Chemistry A, 2015, 3, 14165-14172.	10.3	17
206	Capillary Stress and Structural Relaxation in Moist Granular Materials. Langmuir, 2019, 35, 4397-4402.	3.5	17
207	Correlated Ion Transport and the Gel Phase in Room Temperature Ionic Liquids. Journal of Physical Chemistry B, 2021, 125, 2677-2689.	2.6	17
208	Theory of shock electrodialysis I: Water dissociation and electrosmotic vortices. Journal of Colloid and Interface Science, 2021, 589, 605-615.	9.4	17
209	Induced-Charge Electrokinetic Phenomena. , 2011, , 221-297.		17
210	Interfacial dynamics in transport-limited dissolution. Physical Review E, 2006, 73, 060601.	2.1	16
211	Lifetime of high-k gate dielectrics and analogy with strength of quasibrittle structures. Journal of Applied Physics, 2009, 106, .	2.5	16
212	Fast spot-based multiscale simulations of granular drainage. Powder Technology, 2010, 200, 1-11.	4.2	16
213	Continuous and Selective Removal of Lead from Drinking Water by Shock Electrodialysis. ACS ES&T Water, 2021, 1, 2269-2274.	4.6	16
214	Heat of nervous conduction: A thermodynamic framework. Physical Review E, 2020, 101, 022406.	2.1	15
215	Freezing point depression and freeze-thaw damage by nanofluidic salt trapping. Physical Review Fluids, 2020, 5, .	2.5	15
216	Entrainment of particles during the withdrawal of a fibre from a dilute suspension. Journal of Fluid Mechanics, 2020, 903, .	3.4	14

#	Article	IF	Citations
217	Image inversion and uncertainty quantification for constitutive laws of pattern formation. Journal of Computational Physics, 2021, 436, 110279.	3.8	14
218	Blistering failure of elastic coatings with applications to corrosion resistance. Soft Matter, 2021, 17, 9480-9498.	2.7	14
219	Conformal Mapping Methods for Interfacial Dynamics. , 2005, , 1417-1451.		14
220	Deionization shock driven by electroconvection in a circular channel. Physical Review Fluids, 2019, 4, .	2.5	14
221	Theory of shock electrodialysis II: Mechanisms of selective ion removal. Journal of Colloid and Interface Science, 2021, 589, 616-621.	9.4	13
222	Electroneutrality breakdown in nanopore arrays. Physical Review E, 2021, 104, 044803.	2.1	13
223	Diffusion-limited aggregation on curved surfaces. Europhysics Letters, 2010, 91, 46005.	2.0	12
224	Editorsâ€™ Choiceâ€”Perspectiveâ€”Challenges in Moving to Multiscale Battery Models: Where Electrochemistry Meets and Demands More from Math. Journal of the Electrochemical Society, 2020, 167, 133501.	2.9	12
225	Dip coating of bidisperse particulate suspensions. Journal of Fluid Mechanics, 2022, 936, .	3.4	12
226	Stochastic renormalization group in percolation: I. fluctuations and crossover. Physica A: Statistical Mechanics and Its Applications, 2002, 316, 29-55.	2.6	11
227	Spin-glass charge ordering in ionic liquids. Physical Review Materials, 2019, 3, .	2.4	11
228	Resistive Switching in Aqueous Nanopores by Shock Electrodeposition. Electrochimica Acta, 2016, 222, 370-375.	5.2	10
229	Asymmetric collapse by dissolution or melting in a uniform flow. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20150531.	2.1	10
230	Vortices of electro-osmotic flow in heterogeneous porous media. Physical Review Fluids, 2020, 5, .	2.5	10
231	Average Shape of Transport-Limited Aggregates. Physical Review Letters, 2005, 95, 075504.	7.8	9
232	Cahn-Hilliard Reaction Model for Isotropic Li-ion Battery Particles. Materials Research Society Symposia Proceedings, 2013, 1542, 1.	0.1	9
233	Inertial effects on the generation of co-laminar flows. Journal of Fluid Mechanics, 2015, 767, 85-94.	3.4	9
234	Dielectric Breakdown by Electric-field Induced Phase Separation. Journal of the Electrochemical Society, 2020, 167, 113504.	2.9	9

#	Article	IF	Citations
235	Numerical and Analytic Modeling of a Membraneless Hydrogen Bromine Laminar Flow Batter. ECS Transactions, 2013, 53, 51-62.	0.5	8
236	A Protocol to Characterize pH Sensing Materials and Systems. Small Methods, 2019, 3, 1800265.	8.6	8
237	Enabling a Stable High-Power Lithium-Bromine Flow Battery Using Task-Specific Ionic Liquids. Journal of the Electrochemical Society, 2021, 168, 070542.	2.9	8
238	Rectified and Salt Concentration Dependent Wetting of Hydrophobic Nanopores. Journal of the American Chemical Society, 2022, 144, 11693-11705.	13.7	8
239	Polar liquids at charged interfaces: A dipolar shell theory. Journal of Chemical Physics, 2022, 156, .	3.0	8
240	Corrections to the Central Limit Theorem for Heavy-tailed Probability Densities. Journal of Theoretical Probability, 2011, 24, 895-927.	0.8	7
241	Theory of voltammetry in charged porous media. Journal of Electroanalytical Chemistry, 2018, 811, 105-120.	3.8	7
242	Microscopic theory of capillary pressure hysteresis based on pore-space accessivity and radius-resolved saturation. Chemical Engineering Science, 2019, 196, 225-246.	3.8	7
243	Deionization shocks in crossflow. AICHE Journal, 2021, 67, e17274.	3.6	7
244	Quantifying the tradeoff between energy consumption and the risk of airborne disease transmission for building HVAC systems. Science and Technology for the Built Environment, 2022, 28, 240-254.	1.7	7
245	Single-flow multiphase flow batteries: Theory. Electrochimica Acta, 2021, 389, 138554.	5.2	7
246	Nonlinear Electrokinetic Phenomena. , 2008, , 1461-1470.		7
247	Electro-osmotic instability of concentration enrichment in curved geometries for an aqueous electrolyte. Physical Review Fluids, 2020, 5, .	2.5	7
248	Interatomic Potential for Condensed Phases and Bulk Defects in Silicon. Materials Research Society Symposia Proceedings, 1997, 469, 217.	0.1	6
249	The Environment-Dependent Interatomic Potential Applied To Silicon Disordered Structures And Phase Transitions. Materials Research Society Symposia Proceedings, 1997, 491, 339.	0.1	6
250	Electrochemical impedance of electrodiffusion in charged medium under dc bias. Physical Review E, 2019, 100, 042204.	2.1	6
251	Simultaneous inversion of optical and infra-red image data to determine thermo-mechanical properties of thermally conductive solid materials. International Journal of Heat and Mass Transfer, 2020, 163, 120445.	4.8	6
252	Mercury cyclic porosimetry: Measuring pore-size distributions corrected for both pore-space accessivity and contact-angle hysteresis. Journal of Colloid and Interface Science, 2021, 599, 255-261.	9.4	6

#	Article	IF	Citations
253	Growth morphology and symmetry selection of interfacial instabilities in anisotropic environments. Soft Matter, 2021, 17, 1202-1209.	2.7	6
254	Nonlinear ion transport mediated by induced charge in ultrathin nanoporous membranes. Physical Review E, 2021, 104, 044802.	2.1	6
255	Interfacial Resistive Switching by Multiphase Polarization in Ion-Intercalation Nanofilms. Nano Letters, 2022, 22, 5866-5873.	9.1	6
256	Imaging Arrangements of Discrete Ions at Liquidâ€“Solid Interfaces. Nano Letters, 2020, 20, 7927-7932.	9.1	5
257	Mean-Field Theory of the Electrical Double Layer in Ionic Liquids. , 2021, , 1-13.		4
258	Theory of freezing point depression in charged porous media. Physical Review E, 2021, 104, 045102.	2.1	4
259	Advances and challenges in the development of nanosheet membranes. Reviews in Chemical Engineering, 2023, 39, 631-668.	4.4	4
260	Derivation of Interatomic Potentials by Inversion of Ab Initio Cohesive Energy Curves. Materials Research Society Symposia Proceedings, 1995, 408, 79.	0.1	3
261	AC Electro-Osmotic Flow. , 2008, , 8-14.		3
262	Modelling Hysteresis in the Water Sorption and Drying Shrinkage of Cement Paste. , 2015, , .		3
263	Physics of Electrostatic Projection Revealed by High-Speed Video Imaging. Physical Review Applied, 2020, 13, .	3.8	3
264	Phase separation of stable colloidal clusters. Physical Review Materials, 2018, 2, .	2.4	3
265	Electroactuators: from understanding to micro-robotics and energy conversion: general discussion. Faraday Discussions, 2017, 199, 525-545.	3.2	2
266	Electrotunable wetting, and micro- and nanofluidics: general discussion. Faraday Discussions, 2017, 199, 195-237.	3.2	2
267	Theory of Faradaically Modulated Redox Active Electrodes for Electrochemically Mediated Selective Adsorption Processes. Journal of the Electrochemical Society, 2021, 168, 053501.	2.9	2
268	Avoiding surface instability and slurry jamming in simultaneous multilayer coating of structured particulate films. Journal of Coatings Technology Research, 2022, 19, 131-142.	2.5	2
269	Electrokinetics in two-dimensional complicated geometries: Conformal mapping and experimental comparison. Physical Review Fluids, 2022, 7, .	2.5	2
270	Defect-Induced Shifts in the Elastic Constants of Silicon. Materials Research Society Symposia Proceedings, 2002, 741, 5261.	0.1	1

#	Article	IF	Citations
271	Interpretation of Full Sorption-Desorption Isotherms as a Tool for Understanding Concrete Pore Structure. , 2013, , .		1
272	Electrovariable nanoplasmonics: general discussion. Faraday Discussions, 2017, 199, 603-613.	3.2	1
273	Unstable Stacking Fault Free Energies in Silicon through Empirical Modeling. Materials Research Society Symposia Proceedings, 1998, 539, 175.	0.1	0
274	Advection-diffusion-limited aggregation. Chaos, 2004, 14, S7-S7.	2.5	0
275	Transport-limited aggregation. Chaos, 2004, 14, S6-S6.	2.5	0
276	Using Scanning Transmission X-ray Microscopy to Reveal the Origin of Lithium Compositional Spatiodynamics in Battery Materials. Microscopy and Microanalysis, 2017, 23, 888-889.	0.4	0
277	Nanotribology and voltage-controlled friction: general discussion. Faraday Discussions, 2017, 199, 349-376.	3.2	0
278	pH Sensor Benchmarking: A Protocol to Characterize pH Sensing Materials and Systems (Small) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 46	8.6	0
279	A Two-Species Reaction-Diffusion Problem with One Static Reactant: The Case of Higher Order Kinetics. , 2002, , 1-10.		0
280	AC Electro-Osmotic Flow. , 2013, , 1-9.		0
281	Nonlinear Electrokinetic Phenomena. , 2013, , 1-13.		0
282	Electrokinetic Motion of Polarizable Particles. , 2013, , 1-11.		0