

Biomacromolecules enabled dendrite-free lithium metal cryo-electron microscopy

Nature Communications

11, 488

DOI: [10.1038/s41467-020-14358-1](https://doi.org/10.1038/s41467-020-14358-1)

Citation Report

#	ARTICLE	IF	CITATIONS
1	Modified solid-electrolyte interphase toward stable Li metal anode. Nano Energy, 2020, 77, 105308.	8.2	75
2	Toward Next-Generation Carbon-Based Materials Derived from Waste and Biomass for High-Performance Energy Applications. Energy Technology, 2020, 8, 2000714.	1.8	15
3	Arrayed silk fibroin for high-performance Li metal batteries and atomic interface structure revealed by cryo-TEM. Journal of Materials Chemistry A, 2020, 8, 26045-26054.	5.2	47
4	Multi-scale Imaging of Solid-State Battery Interfaces: From Atomic Scale to Macroscopic Scale. Chem, 2020, 6, 2199-2218.	5.8	64
5	Immunizing lithium metal anodes against dendrite growth using protein molecules to achieve high energy batteries. Nature Communications, 2020, 11, 5429.	5.8	129
6	Nanopile Interlocking Separator Coating toward Uniform Li Deposition of the Li Metal Anodes. ACS Applied Materials & Interfaces, 2020, 12, 43543-43552.	4.0	22
7	Double-Shelled C@MoS ₂ Structures Preloaded with Sulfur: An Additive Reservoir for Stable Lithium Metal Anodes. Angewandte Chemie, 2020, 132, 15973-15977.	1.6	11
8	Double-Shelled C@MoS ₂ Structures Preloaded with Sulfur: An Additive Reservoir for Stable Lithium Metal Anodes. Angewandte Chemie - International Edition, 2020, 59, 15839-15843.	7.2	79
9	12 years roadmap of the sulfur cathode for lithium sulfur batteries (2009-2020). Energy Storage Materials, 2020, 30, 346-366.	9.5	189
10	Sweeping potential regulated structural and chemical evolution of solid-electrolyte interphase on Cu and Li as revealed by cryo-TEM. Nano Energy, 2020, 76, 105040.	8.2	16
11	Recent advances in the mitigation of dendrites in lithium-metal batteries. Journal of Applied Physics, 2020, 128, .	1.1	14
12	Platinum nano-interlayer enhanced interface for stable all-solid-state batteries observed via cryo-transmission electron microscopy. Journal of Materials Chemistry A, 2020, 8, 13541-13547.	5.2	47
13	In Situ Construction of a LiF-Enriched Interface for Stable All-Solid-State Batteries and its Origin Revealed by Cryo-TEM. Advanced Materials, 2020, 32, e2000223.	11.1	278
14	A lattice-matched interface between in situ/artificial SEIs inhibiting SEI decomposition for enhanced lithium storage. Journal of Materials Chemistry A, 2020, 8, 11165-11176.	5.2	22
15	Analyzing Energy Materials by Cryogenic Electron Microscopy. Advanced Materials, 2020, 32, e1908293.	11.1	61
16	Armed lithium metal anodes with functional skeletons. Materials Today Nano, 2021, 13, 100103.	2.3	38
17	A core@sheath nanofiber separator with combined hardness and softness for lithium-metal batteries. Chemical Engineering Journal, 2021, 404, 126542.	6.6	32
18	In-situ construction of a Mg-modified interface to guide uniform lithium deposition for stable all-solid-state batteries. Journal of Energy Chemistry, 2021, 55, 272-278.	7.1	49

#	ARTICLE	IF	CITATIONS
19	A fast-ion conducting interface enabled by aluminum silicate fibers for stable Li metal batteries. <i>Chemical Engineering Journal</i> , 2021, 408, 128016.	6.6	48
20	Recent development of Na metal anodes: Interphase engineering chemistries determine the electrochemical performance. <i>Chemical Engineering Journal</i> , 2021, 409, 127943.	6.6	38
21	Protein-Engineered Functional Materials for Bioelectronics. <i>Advanced Functional Materials</i> , 2021, 31, 2006744.	7.8	24
22	Lithium ion diffusion mechanism on the inorganic components of the solid-electrolyte interphase. <i>Journal of Materials Chemistry A</i> , 2021, 9, 10251-10259.	5.2	66
23	Materials chemistry among the artificial solid electrolyte interphases of metallic lithium anodes. <i>Materials Chemistry Frontiers</i> , 2021, 5, 5194-5210.	3.2	9
24	A biopolymer-based functional separator for stable Li metal batteries with an additive-free commercial electrolyte. <i>Journal of Materials Chemistry A</i> , 2021, 9, 7774-7781.	5.2	25
25	Dendrites in Solid-State Batteries: Ion Transport Behavior, Advanced Characterization, and Interface Regulation. <i>Advanced Energy Materials</i> , 2021, 11, 2003250.	10.2	69
26	Rejuvenating dead lithium supply in lithium metal anodes by iodine redox. <i>Nature Energy</i> , 2021, 6, 378-387.	19.8	282
27	A Growing Appreciation for the Role of LiF in the Solid Electrolyte Interphase. <i>Advanced Energy Materials</i> , 2021, 11, 2100046.	10.2	401
28	Nanostructured strategies towards boosting organic lithium-ion batteries. <i>Journal of Energy Chemistry</i> , 2021, 54, 179-193.	7.1	56
29	Metal Atom-Decorated Carbon Nanomaterials for Enhancing Li-S/Se Batteries Performances: A Mini Review. <i>Frontiers in Energy Research</i> , 2021, 9, .	1.2	12
30	Radical anion functionalization of two-dimensional materials as a means of engineering simultaneously high electronic and ionic conductivity solids. <i>Nanotechnology</i> , 2021, 32, 245709.	1.3	2
31	Stable Lithium-Carbon Composite Enabled by Dual-Salt Additives. <i>Nano-Micro Letters</i> , 2021, 13, 111.	14.4	11
32	Characterization of Electrodeposited Li Metal by Cryo-Scanning Transmission Electron Microscopy/Electron Energy Loss Spectroscopy. <i>Journal of Physical Chemistry Letters</i> , 2021, 12, 3922-3927.	2.1	15
33	Unravelling the Mechanism of Lithium Nucleation and Growth and the Interaction with the Solid Electrolyte Interface. <i>ACS Energy Letters</i> , 2021, 6, 1719-1728.	8.8	61
34	A Decade of Progress on Solid-State Electrolytes for Secondary Batteries: Advances and Contributions. <i>Advanced Functional Materials</i> , 2021, 31, 2100891.	7.8	73
35	Visualizing the Sensitive Lithium with Atomic Precision: Cryogenic Electron Microscopy for Batteries. <i>Accounts of Chemical Research</i> , 2021, 54, 2088-2099.	7.6	59
36	Polymorph Evolution Mechanisms and Regulation Strategies of Lithium Metal Anode under Multiphysical Fields. <i>Chemical Reviews</i> , 2021, 121, 5986-6056.	23.0	165

#	ARTICLE	IF	CITATIONS
37	Silicious nanowires enabled dendrites suppression and flame retardancy for advanced lithium metal anodes. <i>Nano Energy</i> , 2021, 82, 105723.	8.2	50
38	Natural Wood Structure Inspires Practical Lithium-Metal Batteries. <i>ACS Energy Letters</i> , 2021, 6, 2103-2110.	8.8	29
39	Template-Sacrificed Hot Fusion Construction and Nanoseed Modification of 3D Porous Copper Nanoscaffold Host for Stable Cycling Lithium Metal Anodes. <i>Advanced Functional Materials</i> , 2021, 31, 2102735.	7.8	51
40	Marrying Ester Group with Lithium Salt: Cellulose-Acetate-Enabled LiF-Enriched Interface for Stable Lithium Metal Anodes. <i>Advanced Functional Materials</i> , 2021, 31, 2102228.	7.8	57
41	Probing the Formation of Lithium Metal in an Inert Atmosphere by Big Data-Driven <i>In Situ</i> Electron Microscopy. <i>ACS Applied Energy Materials</i> , 2021, 4, 7226-7232.	2.5	2
42	Lithium Host: Advanced architecture components for lithium metal anode. <i>Energy Storage Materials</i> , 2021, 38, 276-298.	9.5	89
43	Excellent Performances of Composite Polymer Electrolytes with Porous Vinyl-Functionalized SiO ₂ Nanoparticles for Lithium Metal Batteries. <i>Polymers</i> , 2021, 13, 2468.	2.0	14
44	How to avoid dendrite formation in metal batteries: Innovative strategies for dendrite suppression. <i>Nano Energy</i> , 2021, 86, 106142.	8.2	116
45	An electron-deficient carbon current collector for anode-free Li-metal batteries. <i>Nature Communications</i> , 2021, 12, 5537.	5.8	104
46	Reclaiming Inactive Lithium with a Triiodide/Iodide Redox Couple for Practical Lithium Metal Batteries. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 22990-22995.	7.2	52
47	Cryo-Electron Microscopy for Unveiling the Sensitive Battery Materials. <i>Small Science</i> , 2021, 1, 2100055.	5.8	35
48	In-situ construction of stable cathode/Li interfaces simultaneously via different electron density azo compounds for solid-state lithium metal batteries. <i>Energy Storage Materials</i> , 2021, 40, 394-401.	9.5	20
49	Challenges and progresses of lithium-metal batteries. <i>Chemical Engineering Journal</i> , 2021, 420, 129739.	6.6	67
50	Reclaiming Inactive Lithium with a Triiodide/Iodide Redox Couple for Practical Lithium Metal Batteries. <i>Angewandte Chemie</i> , 2021, 133, 23172.	1.6	10
51	Undervalued Roles of Binder in Modulating Solid Electrolyte Interphase Formation of Silicon-Based Anode Materials. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 45139-45148.	4.0	36
52	Lithiophilic and conductive V ₂ O ₃ /VN nanosheets as regulating layer for high-rate, high-areal capacity and dendrite-free lithium metal anodes. <i>Chemical Engineering Journal</i> , 2021, 420, 129787.	6.6	20
53	Appreciating the role of polysulfides in lithium-sulfur batteries and regulation strategies by electrolytes engineering. <i>Energy Storage Materials</i> , 2021, 42, 645-678.	9.5	36
54	Interface issues of lithium metal anode for high-energy batteries: Challenges, strategies, and perspectives. <i>Informa-Materially</i> , 2021, 3, 155-174.	8.5	195

#	ARTICLE	IF	CITATIONS
55	Interfacial processes in electrochemical energy systems. <i>Chemical Communications</i> , 2021, 57, 10453-10468.	2.2	28
56	The Role of Ex Situ Solid Electrolyte Interphase in Lithium Metal Batteries. , 2021, , 479-511.		0
57	Biomass-based materials for green lithium secondary batteries. <i>Energy and Environmental Science</i> , 2021, 14, 1326-1379.	15.6	157
58	Review on Li Deposition in Working Batteries: From Nucleation to Early Growth. <i>Advanced Materials</i> , 2021, 33, e2004128.	11.1	205
59	Lithiophilic Sb surface modified Cu nanowires grown on Cu foam: a synergistic 1D@3D hierarchical structure for stable lithium metal anodes. <i>Journal of Materials Chemistry A</i> , 2021, 9, 24963-24970.	5.2	13
60	Cryo-EM for battery materials and interfaces: Workflow, achievements, and perspectives. <i>IScience</i> , 2021, 24, 103402.	1.9	16
61	Fumaronitrile-fixed in-situ gel polymer electrolyte balancing high safety and superior electrochemical performance for Li metal batteries. <i>Energy Storage Materials</i> , 2022, 44, 537-546.	9.5	40
62	Pitfalls in Electrochemical Liquid Cell Transmission Electron Microscopy for Dendrite Observation. <i>Advanced Energy and Sustainability Research</i> , 0, , 2100160.	2.8	2
63	Stabilizing Sodium Metal Anodes with Surfactant-Based Electrolytes and Unraveling the Atomic Structure of Interfaces by Cryo-TEM. <i>Nano Letters</i> , 2022, 22, 1382-1390.	4.5	48
64	Soybean Protein Fiber Enabled Controllable Li Deposition and a LiF-Nanocrystal-Enriched Interface for Stable Li Metal Batteries. <i>Nano Letters</i> , 2022, 22, 1374-1381.	4.5	41
65	Investigating lithium metal anodes with nonaqueous electrolytes for safe and high-performance batteries. <i>Sustainable Energy and Fuels</i> , 2022, 6, 954-970.	2.5	11
66	Oxygen Loss in Layered Oxide Cathodes for Li-Ion Batteries: Mechanisms, Effects, and Mitigation. <i>Chemical Reviews</i> , 2022, 122, 5641-5681.	23.0	108
67	Solid Electrolyte Interphase Growth in Lithium Metal Cells With Normal Electrolyte Flow. <i>Frontiers in Chemical Engineering</i> , 2022, 4, .	1.3	3
68	Lignin-Based Materials for Sustainable Rechargeable Batteries. <i>Polymers</i> , 2022, 14, 673.	2.0	16
69	A review of concepts and contributions in lithium metal anode development. <i>Materials Today</i> , 2022, 53, 173-196.	8.3	74
70	Microstructure of Lithium Dendrites Revealed by Room-Temperature Electron Microscopy. <i>Journal of the American Chemical Society</i> , 2022, 144, 4124-4132.	6.6	12
71	The pathway toward practical application of lithium-metal anodes for non-aqueous secondary batteries. <i>National Science Review</i> , 2022, 9, .	4.6	9
72	Self-assembled monolayers direct a LiF-rich interphase toward long-life lithium metal batteries. <i>Science</i> , 2022, 375, 739-745.	6.0	368

#	ARTICLE	IF	CITATIONS
73	Advances in carbon materials for stable lithium metal batteries. <i>New Carbon Materials</i> , 2022, 37, 1-24.	2.9	31
74	Review of Multifunctional Separators: Stabilizing the Cathode and the Anode for Alkali (Li, Na, and K) Metal–Sulfur and Selenium Batteries. <i>Chemical Reviews</i> , 2022, 122, 8053-8125.	23.0	132
75	Pomegranate-Inspired Biomimetic Pressure Sensor Arrays With a Wide Range and High Linear Sensitivity for Human–Machine Interaction. <i>IEEE Transactions on Electron Devices</i> , 2022, 69, 1353-1358.	1.6	8
76	Biomass-Derived Carbon for High-Performance Batteries: From Structure to Properties. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	71
77	Dynamic Investigation of Battery Materials via Advanced Visualization: From Particle, Electrode to Cell Level. <i>Advanced Materials</i> , 2022, 34, e2200777.	11.1	21
78	Configurational and structural design of separators toward shuttling-free and dendrite-free lithium-sulfur batteries: A review. <i>Energy Storage Materials</i> , 2022, 47, 629-648.	9.5	53
79	Three-dimensional Au/carbon nanotube-graphene foam hybrid nanostructure for dendrite free sodium metal anode with long cycle stability. <i>Journal of Materials Science and Technology</i> , 2022, 118, 199-207.	5.6	11
80	Enhanced Performance of All-Solid-State Li Metal Battery Based on Polyether Electrolytes with LiNO_3 Additive. <i>Macromolecular Chemistry and Physics</i> , 2022, 223, .	1.1	4
81	Rechargeable Batteries: Regulating Electronic and Ionic Transports for High Electrochemical Performance. <i>Advanced Materials Technologies</i> , 2022, 7, .	3.0	8
82	Lithium Trithiocarbonate as a Dual-Function Electrode Material for High-Performance Lithium–Sulfur Batteries. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	17
83	Progress and perspectives on electrospinning techniques for solid-state lithium batteries. , 2022, 4, 539-575.		25
84	A Pressure Responsive Artificial Interphase Layer of BaTiO_3 against Dendrite Growth for Stable Lithium Metal Anodes. <i>Batteries and Supercaps</i> , 2022, 5, .	2.4	3
85	Silk Fibroin Coating Enables Dendrite-free Zinc Anode for Long-Life Aqueous Zinc-Ion Batteries. <i>ChemSusChem</i> , 2022, 15, .	3.6	15
86	In-Situ Electrodeposition of Nanostructured Carbon Strengthened Interface for Stabilizing Lithium Metal Anode. <i>ACS Nano</i> , 2022, 16, 9883-9893.	7.3	34
87	Biomass-Derived Anion-Anchoring Nano- CaCO_3 Coating for Regulating Ion Transport on Li Metal Surface. <i>Nano Letters</i> , 2022, 22, 5473-5480.	4.5	23
88	Rational Engineering of Anode Current Collector for Dendrite-Free Lithium Deposition: Strategy, Application, and Perspective. <i>Frontiers in Chemistry</i> , 2022, 10, .	1.8	5
89	Mechanically robust epoxy resin-based gel polymer electrolyte stabilizing ion deposition for high-performance lithium metal batteries. <i>Materials Chemistry and Physics</i> , 2022, 287, 126324.	2.0	4
90	Sweetening Lithium Metal Interface by High Surface and Adhesive Energy Coating of Crystalline β -Glucose Film to Inhibit Dendrite Growth. <i>Small</i> , 2022, 18, .	5.2	5

#	ARTICLE	IF	CITATIONS
91	Dendrite-Free and Long-Cycling Lithium Metal Battery Enabled by Ultrathin, 2D Shield-Defensive, and Single Lithium-Ion Conducting Polymeric Membrane. <i>Advanced Materials</i> , 2022, 34, .	11.1	21
92	Sodiophilic skeleton based on the packing of hard carbon microspheres for stable sodium metal anode without dead sodium. <i>Journal of Energy Chemistry</i> , 2022, 73, 400-406.	7.1	11
93	Constructing Self-Adapting Electrostatic Interface on Lithium Metal Anode for Stable 400 Wh kg ⁻¹ Pouch Cells. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	37
94	Characterization of the structure and chemistry of the solid-electrolyte interface by cryo-EM leads to high-performance solid-state Li-metal batteries. <i>Nature Nanotechnology</i> , 2022, 17, 768-776.	15.6	75
95	Enhanced Cyclability of Lithium Metal Anodes Enabled by Anti-aggregation of Lithiophilic Seeds. <i>Nano Letters</i> , 2022, 22, 5874-5882.	4.5	26
96	Visualization of battery materials and their interfaces/interphases using cryogenic electron microscopy. <i>Materials Today</i> , 2022, 58, 238-274.	8.3	17
97	Regulating Lithium Ion Transport by a Highly Stretchable Interface for Dendrite-Free Lithium Metal Batteries. <i>ACS Applied Energy Materials</i> , 2022, 5, 10141-10148.	2.5	4
98	Development of quasi-solid-state anode-free high-energy lithium sulfide-based batteries. <i>Nature Communications</i> , 2022, 13, .	5.8	38
99	A review of biomass-derived carbon materials for lithium metal anodes. <i>New Carbon Materials</i> , 2022, 37, 658-674.	2.9	8
100	Machine Learning Predicts the X-ray Photoelectron Spectroscopy of the Solid Electrolyte Interface of Lithium Metal Battery. <i>Journal of Physical Chemistry Letters</i> , 2022, 13, 8047-8054.	2.1	16
101	Atomistic insights into the morphology of deposited Li. <i>Journal of Materials Chemistry A</i> , 2022, 10, 18577-18591.	5.2	3
102	Revisiting the Role of Physical Confinement and Chemical Regulation of 3D Hosts for Dendrite-Free Li Metal Anode. <i>Nano-Micro Letters</i> , 2022, 14, .	14.4	23
103	Improvement Strategies toward Stable Lithium-Metal Anodes for High-Energy Batteries. <i>Batteries and Supercaps</i> , 2022, 5, .	2.4	4
104	Highly aligned lithiophilic electrospun nanofiber membrane for the multiscale suppression of Li dendrite growth. <i>EScience</i> , 2022, 2, 655-665.	25.0	25
105	Development of Proteins for High-Performance Energy Storage Devices: Opportunities, Challenges, and Strategies. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	5
106	Understanding the Advantageous Features of Bacterial Cellulose-Based Separator in Li-S Battery. <i>Advanced Materials Interfaces</i> , 2023, 10, .	1.9	8
107	Probing the Mechanically Stable Solid Electrolyte Interphase and the Implications in Design Strategies. <i>Advanced Materials</i> , 2023, 35, .	11.1	11
108	Stabilizing Li ₄ SnS ₄ Electrolyte from Interface to Bulk Phase with a Gradient Lithium Iodide/Polymer Layer in Lithium Metal Batteries. <i>Nano Letters</i> , 2022, 22, 8346-8354.	4.5	29

#	ARTICLE	IF	CITATIONS
109	Fluorinated Strategies Among All-Solid-State Lithium Metal Batteries from Microperspective. Small Structures, 2023, 4, .	6.9	23
110	Cryogenic electron microscopy workflows for the characterization of electrochemical interfaces and interphases in batteries. Journal of Power Sources, 2023, 556, 232515.	4.0	1
111	Femtosecond laser engineered eggshell membrane for durable oil/water separation under harsh conditions. Journal of Membrane Science, 2023, 668, 121242.	4.1	10
112	Three-dimensional MOF-derived host with surface-preferred and spatial-selective effect for dendrite-free lithium metal battery. Journal of Alloys and Compounds, 2023, 938, 168542.	2.8	2
113	Cationic Interfacial Layer toward a LiF-Enriched Interphase for Stable Li Metal Batteries. ACS Energy Letters, 2023, 8, 486-493.	8.8	23
114	Tracking lithiation with transmission electron microscopy. Science China Chemistry, 2024, 67, 291-311.	4.2	4
115	Ultrasmooth and Dense Lithium Deposition Toward High-Performance Lithium-Metal Batteries. Advanced Materials, 0, , 2210130.	11.1	11
116	Enabling 420 Wh/kg ¹ Stable Lithium-Metal Pouch Cells by Lanthanum Doping. Advanced Materials, 0, , 2211032.	11.1	20
117	Li+ migration and transformation at the interface: A review for stable Li metal anode. Energy Storage Materials, 2023, 55, 782-807.	9.5	12
118	Highly Thermostable Interphase Enables Boosting High-Temperature Lifespan for Metallic Lithium Batteries. Small, 2023, 19, .	5.2	7
119	Surface engineering toward stable lithium metal anodes. Science Advances, 2023, 9, .	4.7	37
120	Solid polymer electrolytes in all-solid-state lithium metal batteries: From microstructures to properties. Journal of Energy Chemistry, 2023, 81, 358-378.	7.1	15
121	In-situ cross-linked multifunctional polymer electrolyte buffer layers for high-performance garnet solid-state lithium metal batteries. Journal of Colloid and Interface Science, 2023, 641, 470-478.	5.0	2
122	Understanding and quantifying capacity loss in storage aging of Ah-level Li metal pouch cells. Informa-Materials, 2023, 5, .	8.5	3
123	Complementary combination of lithium protection strategies for robust and longevous lithium metal batteries. Energy Storage Materials, 2023, 57, 229-248.	9.5	16
124	Current Status and Enhancement Strategies for All-Solid-State Lithium Batteries. Accounts of Materials Research, 2023, 4, 472-483.	5.9	21
125	Ultra-thin and ultra-light self-lubricating layer with accelerated dynamics for anode-free lithium metal batteries. Energy Storage Materials, 2023, 58, 110-122.	9.5	7
126	Ti3CNT MXene/rGO scaffolds directing the formation of a robust, layered SEI toward high-rate and long-cycle lithium metal batteries. Energy Storage Materials, 2023, 58, 322-331.	9.5	10

#	ARTICLE	IF	CITATIONS
127	Fluorinated Solid Electrolyte Interphase Derived From Fluorinated Polymer Electrolyte To Stabilize Li Metal. ChemSusChem, 2023, 16, .	3.6	1
128	Bioderived freestanding film as a robust interfacial protective layer for advanced lithium metal anodes. Energy Technology, 0, , .	1.8	0
131	Considerable molecular interactions enable robust electrochemical properties: hydrogen bonds in lithium-ion batteries. Science China Chemistry, 2023, 66, 1905-1923.	4.2	1
143	Two-dimensional MXenes for flexible energy storage devices. Energy and Environmental Science, 2023, 16, 4191-4250.	15.6	12
148	Basic guidelines of first-principles calculations for suitable selection of electrochemical Li storage materials: a review. Journal of Materials Chemistry A, 2023, 11, 24482-24518.	5.2	4