Jeff Sakamoto

List of Publications by Year
in descending order

120 papers	9,711 citations	41344 49 h-index	38395 95 g-index
122 all docs	122 docs citations	122 times ranked	6714 citing authors

#	Article	IF	Citations
1	Surface Chemistry Mechanism of Ultra-Low Interfacial Resistance in the Solid-State Electrolyte Li₇La₃Zr₂O₁₂. Chemistry of Materials, 2017, 29, 7961-7968.	6.7	612
2	Intergranular Li metal propagation through polycrystalline Li6.25Al0.25La3Zr2O12 ceramic electrolyte. Electrochimica Acta, 2017, 223, 85-91.	5.2	520
3	Biomimetic 3D-printed scaffolds for spinal cord injury repair. Nature Medicine, 2019, 25, 263-269.	30.7	460
4	Characterizing the Liâ€“Li7La3Zr2O12 interface stability and kinetics as a function of temperature and current density. Journal of Power Sources, 2016, 302, 135-139.	7.8	446
5	Elastic Properties of the Solid Electrolyte Li₇La₃Zr₂O₁₂(LLZO). Chemistry of Materials, 2016, 28, 197-206.	6.7	445
6	Interfacial Stability of Li Metalâ€“Solid Electrolyte Elucidated via in Situ Electron Microscopy. Nano Letters, 2016, 16, 7030-7036.	9.1	309
7	Impact of air exposure and surface chemistry on Liâ€“Li₇La₃Zr₂O₁₂ interfacial resistance. Journal of Materials Chemistry A, 2017, 5, 13475-13487.	10.3	300
8	Characterizing the Li-Solid-Electrolyte Interface Dynamics as a Function of Stack Pressure and Current Density. Joule, 2019, 3, 2165-2178.	24.0	298
9	Tetragonal vs. cubic phase stability in Al â€“ free Ta doped Li₇La₃Zr₂O₁₂ (LLZO). Journal of Materials Chemistry A, 2014, 2, 13431-13436.	10.3	273
10	Electrochemical Window of the Li-Ion Solid Electrolyte Li₇La₃Zr₂O₁₂. ACS Energy Letters, 2017, 2, 462-468.	17.4	255
11	Elastic, plastic, and creep mechanical properties of lithium metal. Journal of Materials Science, 2019, 54, 2585-2600.	3.7	247
12	Li Penetration in Ceramic Solid Electrolytes: Operando Microscopy Analysis of Morphology, Propagation, and Reversibility. Matter, 2020, 2, 1025-1048.	10.0	240
13	Challenges for and Pathways toward Li-Metal-Based All-Solid-State Batteries. ACS Energy Letters, 0, , 1399-1404.	17.4	228
14	Local electronic structure variation resulting in Li â€˜filamentâ€™ formation within solid electrolytes. Nature Materials, 2021, 20, 1485-1490.	27.5	226
15	Dopantâ€Dependent Stability of Garnet Solid Electrolyte Interfaces with Lithium Metal. Advanced Energy Materials, 2019, 9, 1803440.	19.5	217
16	Controlling and correlating the effect of grain size with the mechanical and electrochemical properties of Li₇La₃Zr₂O₁₂solid-state electrolyte. Journal of Materials Chemistry A, 2017, 5, 21491-21504.	10.3	202
17	Efficient fast-charging of lithium-ion batteries enabled by laser-patterned three-dimensional graphite anode architectures. Journal of Power Sources, 2020, 471, 228475.	7.8	168
18	Templated Agarose Scaffolds Support Linear Axonal Regeneration. Tissue Engineering, 2006, 12, 2777-2787.	4.6	159

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19	Atomic Layer Deposition of the Solid Electrolyte Garnet Li₇La₃Zr₂O₁₂. Chemistry of Materials, 2017, 29, 3785-3792.	6.7	149
20	A Tale of Two Sites: On Defining the Carrier Concentration in Garnetâ€Based Ionic Conductors for Advanced Li Batteries. Advanced Energy Materials, 2015, 5, 1500096.	19.5	143
21	Mechanical behavior of Li-ion-conducting crystalline oxide-based solid electrolytes: a brief review. Ionics, 2018, 24, 1271-1276.	2.4	136
22	Templated agarose scaffolds for the support of motor axon regeneration into sites of complete spinal cord transection. Biomaterials, 2013, 34, 1529-1536.	11.4	135
23	The Effect of Relative Density on the Mechanical Properties of Hotâ€Pressed Cubic <scp><scp>Li</scp></scp>₇<scp><scp>La</scp></scp>₃<scp><scp>Zr</scp></scp>₂<scp><sc Journal of the American Ceramic Society, 2016, 99, 1367-1374.	3.8	130
24	Demonstration of high current densities and extended cycling in the garnet Li7La3Zr2O12 solid electrolyte. Journal of Power Sources, 2018, 396, 314-318.	7.8	127
25	Temperature dependent flux balance of the Li/Li7La3Zr2O12 interface. Electrochimica Acta, 2019, 296, 842-847.	5.2	120
26	The effect of 24c-site (A) cation substitution on the tetragonalâ€“cubic phase transition in Li7â^'La3â^'A Zr2O12 garnet-based ceramic electrolyte. Journal of Power Sources, 2013, 230, 261-266.	7.8	116
27	Enabling 6C Fast Charging of Liâ€Ion Batteries with Graphite/Hard Carbon Hybrid Anodes. Advanced Energy Materials, 2021, 11, 2003336.	19.5	116
28	Microstructure and Liâ€Ion Conductivity of Hotâ€Pressed Cubic Li₇La₃Zr₂O₁₂. Journal of the American Ceramic Society, 2015, 98, 1209-1214.	3.8	114
29	Synthesis of nano-scale fast ion conducting cubic Li₇La₃Zr₂O₁₂. Nanotechnology, 2013, 24, 424005.	2.6	108
30	Mechanical properties of the solid Li-ion conducting electrolyte: Li0.33La0.57TiO3. Journal of Materials Science, 2012, 47, 5970-5977.	3.7	106
31	Effect of Processing Conditions of 75Li2S-25P2S5 Solid Electrolyte on its DC Electrochemical Behavior. Electrochimica Acta, 2017, 237, 144-151.	5.2	103
32	Tests results and performance comparisons of coated and un-coated skutterudite based segmented unicouples. Energy Conversion and Management, 2006, 47, 174-200.	9.2	102
33	Enabling â€œlithium-freeâ€•manufacturing of pure lithium metal solid-state batteries through in situ plating. Nature Communications, 2020, 11, 5201.	12.8	101
34	Structure and Stoichiometry in Supervalent Doped Li₇La₃Zr₂O₁₂. Chemistry of Materials, 2015, 27, 3658-3665.	6.7	99
35	Sodium Plating from Naâ€Î²â€³â€Alumina Ceramics at Room Temperature, Paving the Way for Fastâ€Charging Allâ€Solidâ€State Batteries. Advanced Energy Materials, 2020, 10, 1902899.	19.5	99
36	Transitioning solid-state batteries from lab to market: Linking electro-chemo-mechanics with practical considerations. Joule, 2021, 5, 1371-1390.	24.0	92

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37	Mechanical and physical properties of LiNi0.33Mn0.33Co0.33O2 (NMC). Journal of the European Ceramic Society, 2017, 37, 3213-3217.	5.7	90
38	Enhanced thermoelectric properties of Ba-filled skutterudites by grain size reduction and Ag nanoparticle inclusion. Journal of Materials Chemistry, 2012, 22, 2958-2964.	6.7	87
39	A preliminary investigation of fracture toughness of Li7La3Zr2O12 and its comparison to other solid Li-ionconductors. Materials Letters, 2013, 96, 117-120.	2.6	87
40	Elastic properties of lithium cobalt oxide (LiCoO₂). Journal of Asian Ceramic Societies, 2017, 5, 113-117.	2.3	87
41	Correlating the interface resistance and surface adhesion of the Li metal-solid electrolyte interface. Journal of Power Sources, 2018, 377, 7-11.	7.8	85
42	Controlling Ionic Transport through the PEO-LiTFSI/LLZTO Interface. Electrochemical Society Interface, 2019, 28, 63-69.	0.4	72
43	Kinetic versus Thermodynamic Stability of LLZO in Contact with Lithium Metal. Chemistry of Materials, 2020, 32, 10207-10215.	6.7	68
44	Electrochemical Stability of Li6.5La3Zr1.5M0.5O12 (Mâ€‰=â€‰Nb or Ta) against Metallic Lithium. Frontiers in Energy Research, 2016, 4, .	2.3	62
45	Operando analysis of the molten Li|LLZO interface: Understanding how the physical properties of Li affect the critical current density. Matter, 2021, 4, 1947-1961.	10.0	62
46	Evaluating the Effects of Temperature and Pressure on Li/PEO-LiTFSI Interfacial Stability and Kinetics. Journal of the Electrochemical Society, 2018, 165, A2801-A2806.	2.9	61
47	Electro-chemo-mechanical evolution of sulfide solid electrolyte/Li metal interfaces: operando analysis and ALD interlayer effects. Journal of Materials Chemistry A, 2020, 8, 6291-6302.	10.3	61
48	Correlating Macro and Atomic Structure with Elastic Properties and Ionic Transport of Glassy Li₂Sâ€P₂S₅ (LPS) Solid Electrolyte for Solidâ€State Li Metal Batteries. Advanced Energy Materials, 2020, 10, 2000335.	19.5	56
49	In-situ, non-destructive acoustic characterization of solid state electrolyte cells. Journal of Power Sources, 2016, 324, 126-133.	7.8	54
50	Characterizing the degradation of alginate hydrogel for use in multilumen scaffolds for spinal cord repair. Journal of Biomedical Materials Research - Part A, 2016, 104, 611-619.	4.0	52
51	Mixed Electronic and Ionic Conduction Properties of Lithium Lanthanum Titanate. Advanced Functional Materials, 2020, 30, 1909140.	14.9	51
52	Hierarchically structured TiO₂ for Ba-filled skutterudite with enhanced thermoelectric performance. Journal of Materials Chemistry A, 2014, 2, 20629-20635.	10.3	50
53	Atomic layer deposition and first principles modeling of glassy Li₃BO₃â€“Li₂CO₃ electrolytes for solid-state Li metal batteries. Journal of Materials Chemistry A, 2018, 6, 19425-19437.	10.3	48
54	Elucidating the mobility of H⁺and Li⁺ions in (Li_{6.25â^'x}H_xAl_{0.25})La₃Zr₂O₁₂ via correlative neutron and electron spectroscopy. Energy and Environmental Science, 2019, 12, 945-951.	30.8	48

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55	Correlating the effect of dopant type (Al, Ga, Ta) on the mechanical and electrical properties of hot-pressed Li-garnet electrolyte. Journal of the European Ceramic Society, 2020, 40, 1999-2006.	5.7	46
56	Transport properties of LiCoPO4 and Fe-substituted LiCoPO4. Journal of Power Sources, 2014, 254, 204-208.	7.8	45
57	BDNF gene delivery within and beyond templated agarose multi-channel guidance scaffolds enhances peripheral nerve regeneration. Journal of Neural Engineering, 2016, 13, 066011.	3.5	36
58	Synthesis and Characterization of Telluride Aerogels: Effect of Gelation on Thermoelectric Performance of Bi₂Te₃ and Bi_{2â€“x}Sb_xTe₃ Nanostructures. Journal of Physical Chemistry C, 2012, 116, 17431-17439.	3.1	34
59	Improving Li-ion battery charge rate acceptance through highly ordered hierarchical electrode design. Ionics, 2018, 24, 2935-2943.	2.4	34
60	Interfacial Reactions and Performance of Li₇La₃Zr₂O₁₂-Stabilized Liâ€“Sulfur Hybrid Cell. ACS Applied Materials & Interfaces, 2019, 11, 42042-42048.	8.0	34
61	Peripheral nerve growth within a hydrogel microchannel scaffold supported by a kinkâ€resistant conduit. Journal of Biomedical Materials Research - Part A, 2017, 105, 3392-3399.	4.0	33
62	Electrochemical and Surface Chemistry Analysis of Lithium Lanthanum Zirconium Tantalum Oxide (LLZTO)/Liquid Electrolyte (LE) Interfaces. Journal of Power Sources, 2020, 474, 228598.	7.8	33
63	Non-hydrolytic solâ€“gel synthesis and electrochemical characterization of tin-based oxide aerogels. Journal of Power Sources, 2003, 115, 19-26.	7.8	32
64	More pressure needed. Nature Energy, 2019, 4, 827-828.	39.5	32
65	Electrical, mechanical and chemical behavior of Li1.2Zr1.9Sr0.1(PO4)3. Solid State Ionics, 2017, 300, 38-45.	2.7	30
66	Mechanical properties of individual phases of ZrB2-ZrC eutectic composite measured by nanoindentation. Journal of the European Ceramic Society, 2017, 37, 4223-4227.	5.7	29
67	Deformation and stresses in solid-state composite battery cathodes. Journal of Power Sources, 2019, 440, 227116.	7.8	26
68	Evolving contact mechanics and microstructure formation dynamics of the lithium metal-Li7La3Zr2O12 interface. Nature Communications, 2021, 12, 6369.	12.8	26
69	Mg/O₂ Battery Based on the Magnesiumâ€“Aluminum Chloride Complex (MACC) Electrolyte. Chemistry of Materials, 2016, 28, 7629-7637.	6.7	25
70	Increasing the Pressureâ€Free Stripping Capacity of the Lithium Metal Anode in Solidâ€Stateâ€Batteries by Carbon Nanotubes. Advanced Energy Materials, 2022, 12, .	19.5	21
71	Analysis of elastic, plastic, and creep properties of sodium metal and implications for solid-state batteries. Materialia, 2020, 12, 100792.	2.7	20
72	The effect of aspect ratio on the mechanical behavior of Li metal in solid-state cells. Journal of Power Sources, 2022, 520, 230831.	7.8	20

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73	The mechanics of scaling-up multichannel scaffold technology for clinical nerve repair. Journal of the Mechanical Behavior of Biomedical Materials, 2019, 91, 247-254.	3.1	19
74	Augmenting protein release from layer-by-layer functionalized agarose hydrogels. Carbohydrate Polymers, 2014, 103, 377-384.	10.2	18
75	Engineering a platform for nerve regeneration with direct application to nerve repair technology. Biomaterials, 2019, 216, 119263.	11.4	18
76	Thermoelectric properties of Sn substituted p-type Nd filled skutterudites. Journal of Alloys and Compounds, 2015, 639, 68-73.	5.5	17
77	A Comparative Study on the Synthesis of Al-Doped Li6.2La3Zr2O12 Powder as a Solid Electrolyte Using Solâ€“Gel Synthesis and Solid-State Processing. Journal of Nanoscience and Nanotechnology, 2016, 16, 11662-11668.	0.9	15
78	Characterizing the mechanical behavior of lithium in compression. Journal of Materials Research, 2021, 36, 729-739.	2.6	15
79	Dramatic reduction in the densification temperature of garnet-type solid electrolytes. Ionics, 2018, 24, 1861-1868.	2.4	14
80	The Effect of Mechanical State on the Equilibrium Potential of Alkali Metal/Ceramic Singleâ€Ion Conductor Systems. Advanced Energy Materials, 2021, 11, 2101355.	19.5	14
81	Characterization of hot-pressed von Alpen type NASICON ceramic electrolytes. Solid State Ionics, 2021, 369, 115712.	2.7	14
82	The Role of Acetic Acid and Glycerol in the Synthesis of Amorphous MgO Aerogels. Journal of the American Ceramic Society, 2009, 92, 1011-1016.	3.8	12
83	Cast-in-place, ambiently-dried, silica-based, high-temperature insulation. Acta Materialia, 2017, 127, 450-462.	7.9	12
84	Study on the mechanical properties of porous tin oxide. Ceramics International, 2017, 43, 10913-10918.	4.8	12
85	Preparation of a Li7La3Zr1.5Nb0.5O12 Garnet Solid Electrolyte Ceramic by using Sol-gel Powder Synthesis and Hot Pressing and Its Characterization. Journal of the Korean Physical Society, 2018, 73, 1535-1540.	0.7	11
86	Hexagonal-WO3 nanorods encapsulated in nitrogen and sulfur co-doped reduced graphene oxide as a high-performance anode material for lithium ion batteries. Journal of Solid State Chemistry, 2020, 282, 121068.	2.9	11
87	The Effects of Electric Field Distribution on the Interface Stability in Solid Electrolytes. Journal of the Electrochemical Society, 2020, 167, 140501.	2.9	11
88	Iridium and Lead Doped Ruthenium Oxide Catalysts for Oxygen Evolution. ECS Transactions, 2009, 25, 1371-1382.	0.5	10
89	Crystal Orientation-Dependent Reactivity of Oxide Surfaces in Contact with Lithium Metal. ACS Applied Materials & Interfaces, 2018, 10, 17471-17479.	8.0	9
90	The effect of lanthanoid defects on anionic solvation of Li in Li6.5La2+xZr1.5Ta0.5O12 from xÂ=Â0 to xÂ=Â1.2 garnet. Solid State Ionics, 2020, 345, 115170.	2.7	9

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91	Mapping hot-pressed Li6.25Al0.25La3Zr2O12 (LLZO) grains and grain boundaries through a simple thermal grooving technique. Journal of Asian Ceramic Societies, 2020, 8, 793-803.	2.3	6
92	Super-ionic Conducting Oxide Electrolytes. Materials and Energy, 2015, , 391-414.	0.1	5
93	Fast Li-Ion Conduction in Spinel-Structured Solids. Molecules, 2021, 26, 2625.	3.8	4
94	Correlating Stability and Performance of NaSICON Membranes for Aqueous Redox Flow Batteries. ACS Applied Materials & Interfaces, 2022, 14, 19332-19341.	8.0	3
95	Solidâ€State Batteries: Correlating Macro and Atomic Structure with Elastic Properties and Ionic Transport of Glassy Li₂Sâ€P₂S₅ (LPS) Solid Electrolyte for Solidâ€State Li Metal Batteries (Adv. Energy Mater. 19/2020). Advanced Energy Materials, 2020, 10, 2070085.	19.5	1
96	Mechanical Properties of Lithium Metal for Next Generation Batteries. ECS Meeting Abstracts, 2019, MA2019-01, 161-161.	0.0	1
97	Enabling Fast Charging Lithium-Ion Batteries through the Rational Design of 3-D Anode Architectures. ECS Meeting Abstracts, 2019, , .	0.0	1
98	Electrochemical Formation of Li Metal Anodes to Enable Li-Free Manufacturing of Solid-State Batteries. ECS Meeting Abstracts, 2020, MA2020-01, 293-293.	0.0	1
99	Enabling > 4C Fast Charging of Li-Ion Batteries with Graphite/Hard Carbon Hybrid Anodes to Overcome Energy/Power Density Tradeoffs. ECS Meeting Abstracts, 2020, MA2020-02, 539-539.	0.0	1
100	Integrating Novel Microscopy into Battery Research: From Atomic Resolution to In Situ and Functional Imaging. Microscopy and Microanalysis, 2017, 23, 1998-1999.	0.4	0
101	Elucidating Ion Transport in Lithium-Ion Conductors by Combining Vibrational Spectroscopy in STEM and Neutron Scattering. Microscopy and Microanalysis, 2018, 24, 1496-1497.	0.4	0
102	Dependence of Solid-State Metal Battery Thermodynamics on Interfacial Mechanics. ECS Meeting Abstracts, 2021, MA2021-01, 319-319.	0.0	0
103	Safety Considerations of Lithium Metal Solid State Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 291-291.	0.0	0
104	Direct Observation of Lithium Dendrite Morphology, Propagation, and Reversibility in Garnet Solid Electrolytes Via Operando Video Microscopy. ECS Meeting Abstracts, 2019, , .	0.0	0
105	Atomic Layer Deposition of Ultrathin Glassy Lithium Borate-Carbonate Solid Electrolytes. ECS Meeting Abstracts, 2019, , .	0.0	0
106	Safety Assessment of Solid State Batteries. ECS Meeting Abstracts, 2019, , .	0.0	0
107	Characterization of Tin Phosphide Films for All-Solid-State Battery Anode Fabricated By Aerosol Deposition. ECS Meeting Abstracts, 2019, , .	0.0	0
108	Modeling of Li-Ion Batteries with Highly-Ordered Hierarchical Electrode Design. ECS Meeting Abstracts, 2020, MA2020-01, 2728-2728.	0.0	0

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109	(Invited) Stabilizing Li Anodes using LLZO Membrane Technology. ECS Meeting Abstracts, 2020, MA2020-01, 54-54.	0.0	0
110	Investigating the Mechanical Properties of Na Metal for Solid-State Batteries. ECS Meeting Abstracts, 2020, MA2020-01, 2840-2840.	0.0	0
111	Enabling Fast Charging Lithium-Ion Batteries through Highly Ordered Laser-Patterned Electrode Design. ECS Meeting Abstracts, 2020, MA2020-01, 413-413.	0.0	0
112	Investigation of the Effect of Electrode Design and Material Parameters on the Homogeneity of Reaction Current Density Distribution in Hybrid Anodes Using Continuum Scale Modeling. ECS Meeting Abstracts, 2021, MA2021-02, 414-414.	0.0	0
113	Deformation and Stresses in Solid-State Composite Battery Cathodes. ECS Meeting Abstracts, 2020, MA2020-02, 995-995.	0.0	0
114	(Invited) Enabling Fast Charging Li-ion Batteries through Three-dimensional Graphite Anode Design. ECS Meeting Abstracts, 2020, MA2020-02, 537-537.	0.0	0
115	(Invited) Optimization of Highly Ordered Laser-Patterned Electrode (HOLE) Design for Achieving Enhanced Fast Charging Performance in Graphite Anodes with > 3mAh/cm2 loading. ECS Meeting Abstracts, 2021, MA2021-02, 469-469.	0.0	0
116	(Digital Presentation) Evaluating Stability and Performance of Nasicon Membranes for Crossover Mitigation in Aqueous Redox-Flow Batteries. ECS Meeting Abstracts, 2022, MA2022-01, 1997-1997.	0.0	0
117	Combining Operando Techniques to Probe Chemo-Mechanical Evolution at Buried Solid/Solid Interfaces. ECS Meeting Abstracts, 2022, MA2022-01, 1636-1636.	0.0	0
118	(Invited) The Stability and Kinetics of the Li/Solid Electrolyte Interface. ECS Meeting Abstracts, 2022, MA2022-01, 1640-1640.	0.0	0
119	Understanding Coupled Electro-Chemo-Mechanics during I n Situ Li Metal Anode Formation in Anode-Free Solid-State Batteries. ECS Meeting Abstracts, 2022, MA2022-01, 1630-1630.	0.0	0
120	Electrochemical Desalination Using a Hybrid Redox Flow Cell. ECS Meeting Abstracts, 2022, MA2022-01, 2285-2285.	0.0	0