

Ju Li

Employment *Massachusetts Institute of Technology* Cambridge, MA 02139
Battelle Energy Alliance Professor of Nuclear Science and Engineering,
Full Professor (7/2011-present), Department of Nuclear Science and Engineering
and Department of Materials Science and Engineering

Tongji University Jiading, Shanghai, China
Adjunct Professor (1/2016-6/2021), Department of Materials Science and Engi-
neering

Xi'an Jiaotong University Xi'an, Shaanxi, China
Adjunct Professor (1/2009-7/2020), School of Materials Science and Engineering

University of Pennsylvania Philadelphia, PA 19104
Associate Professor of Materials Science and Engineering (9/2007-6/2011)

Ohio State University Columbus, OH 43210
Assistant Professor of Materials Science and Engineering (9/2002-9/2007)

Massachusetts Institute of Technology Cambridge, MA 02139
Research scientist (4/2002-9/2002), postdoctoral associate (9/2000-4/2002)
Departments of Nuclear Engineering and Materials Science and Engineering

Education *Massachusetts Institute of Technology* Cambridge, MA 02139
Department of Nuclear Engineering (1994-2000) Ph.D., Sept. 2000

University of Science and Technology of China Hefei, Anhui 230026, P.R.C.
Special Class for Gifted Young (1990-1994) B.S. in Physics, 1994

Honors & Awards Fellow of the American Association for the Advancement of Science (2020)

Webometrics *h* > 100 list (rank 3383 Mar. 2021; rank 3841 Oct. 2020)

Clarivate *Highly Cited Researchers* 2019-2020 in *Cross-Field*, 2018 in *Materials Science* category.

Fellow of the Materials Research Society (2017)

Fellow of the American Physical Society (2014)

Thomson Reuters *Highly Cited Researchers* 2014, among 147 scientists world-
wide in *Materials Science* category based on papers published between 2002-2012,
and among “*The World’s Most Influential Scientific Minds 2014*”

Lee Hsun Young Scientist Lecture Series on Materials Science, Institute of Metal
Research, Chinese Academy of Sciences (2011)

Chinese Ministry of Education and Li Ka Shing Foundation Chang Jiang Scholar Award (2009)

TMS Robert Lansing Hardy Award (2009)

Technology Review TR35 award (2007)

National Academy of Engineering U.S. Frontiers of Engineering Symposium (Microsoft Research, Sept. 2007) and German-American Frontiers of Engineering Symposium (Oak Ridge, April 2010) co-sponsored by the Alexander von Humboldt Foundation.

Materials Research Society (MRS) 2006 Outstanding Young Investigator Award

Ohio State University College of Engineering Lumley Research Award 2006

Presidential Early Career Award for Scientists and Engineers (PECASE) 2005

Materials Research Society (MRS) Graduate Student Silver Medalist 1998

MIT Nuclear Engineering Department Manson Benedict Fellowship 1996-1997

Service

Author of free molecular visualization software *AtomEye*:

<http://www.google.com/search?q=AtomEye>

Lead Organizer of MIT A+B Applied Energy Symposium, May 22-24, 2019; Aug. 12-14, 2020; with Dr. Zhenhua Rui.

Member of Editorial Board of *Modelling and Simulation in Materials Science and Engineering* (Feb. 2008-), *Nano Research* (Mar. 2008-), *Science China: Technological Sciences* (Jan. 2013-), *Extreme Mechanics Letters* (Aug. 2014-), *Advanced Fiber Materials* (Dec. 2018-), *Engineering* (May 2020-), *Energy Material Advances* (Sept. 2020-), *Journal of Materiomics* (Jan. 2021-), *eScience* (March 2021-).

3-Member Executive Board (Oct. 2010-present) and International Advisory Board (Aug. 2009-present) of Multiscale Materials Modeling (MMM) conference series.

Lead Organizer of 2013 MRS Fall Meeting Symposium YY “*Elastic Strain Engineering for Unprecedented Materials Properties*”, and Lead Guest Editor of *MRS Bulletin* February 2014 special issue on Elastic Strain Engineering

Author of multiple perspective articles in *MRS Bulletin*

Issued Patents

5. May 29, 2018: US Patent 9985327, “[Air secondary battery](#),” Tetsuya Koido, Akihiro Kushima, Yoshiya Fujiwara, Ju Li.

4. July 24, 2018: US Patent 10033034, “Sulfur nanosponge cathode for lithium-sulfur battery and methods of manufacture thereof,” Junjie Niu, Akihiro Kushima, Chao Wang, Ju Li.
3. April 24, 2018: US Patent 9954262, “Air secondary battery including cathode having trap portion,” Tetsuya Koido, Akihiro Kushima, Yoshiya Fujiwara, Ju Li.
2. Mar 14, 2017, US Patent 9595624 “Strain-engineered bandgaps,” Ju Li, Xiaofeng Qian, Ji Feng.
1. Nov.1, 2016: US Patent 9484489 “Engineered band gaps”, Ju Li, Xiaofeng Qian, Menghao Wu.

Representative Publications (450+ peer-reviewed papers, 35,000+ SCI cites, h-index 95)¹

201. H-W. Xu, H. Wang, J. Zhou and J. Li, “Pure spin photocurrent in non-centrosymmetric crystals: bulk spin photovoltaic effect,” *Nature Communications* **12** (2021) 4330.
200. H-W. Xu, J. Zhou and J. Li, “Light-Induced Quantum Anomalous Hall Effect on the 2D Surfaces of 3D Topological Insulators,” *Advanced Science* (2021) 2101508.
199. E. Tsymbalov, Z. Shi, M. Dao, S. Suresh, J. Li and A. Shapeev, “Machine learning for deep elastic strain engineering of semiconductor electronic band structure and effective mass,” *npj Computational Materials* **7** (2021) 76.
198. S. Li, C-A. Wang, F-Q. Yang, L-N. An, K-P. So and J. Li, “Hollow-grained Voronoi foam ceramics with high strength and thermal superinsulation up to 1400C,” *Materials Today* **46** (2021) 35-43.
197. S.T. Lam, Q-J. Li, R. Ballinger, C. Forsberg and J. Li, “Modeling LiF and FLiBe Molten Salts with Robust Neural Network Interatomic Potential,” *ACS Appl. Mater. Interfaces* **13** (2021) 24582-24592.
196. Q-J. Li, E. Kucukbenli, S. Lam, B. Khaykovich, E. Kaxiras and J. Li, “Development of robust neural-network interatomic potential for molten salt,” *Cell Reports Physical Science* **2** (2021) 100359.
195. S.S. Moeini-Ardakani, S.M. Taheri-Mousavi and J. Li, “Highly efficient parallel grand canonical simulations of interstitial-driven diffusion-deformation processes,” *Modelling Simul. Mater. Sci. Eng.* **29** (2021) 055018.
194. H-W. Xu, J. Zhou, H. Wang, and J. Li, “Light-induced static magnetization: Nonlinear Edelstein effect,” *Physical Review B* **103** (2021) 205417.

¹ResearcherID: A-2993-2008 ISI Web of Knowledge search keywords: “Li J” in Author and “nucl same engn same 02139 or mat same 43210 or mat same Univ Penn or 2041 same Columbus” in Address. See also all publications ranked by Google Scholar.

193. Y-C. Wang, J. Ding, Z. Fan, L. Tian, M. Li, H-H. Lu, Y-Q. Zhang, E. Ma, J. Li and Z-W. Shan, “Tension-compression asymmetry in amorphous silicon,” *Nature Materials* (2021) .
192. M-Y. Li, T. Liu, Z. Shi, W-J. Xue, Y-S. Hu, H. Li, X-J. Huang, J. Li, L-M. Suo and L-Q. Chen, “Dense All-Electrochem-Active Electrodes for All-Solid-State Lithium Batteries,” *Advanced Materials* (2021) 2008723.
191. G-Y. Xu, H-B. Jiang, M. Stapelberg, J-W. Zhou, M-Y. Liu, Q-J. Li, Y-T. Cao, R. Gao, M-G. Cai, J-L. Qiao, M.S. Galanek, W-W. Fan, W-J. Xue, B. Marelli, M-F. Zhu and J. Li, “Self-Perpetuating Carbon Foam Microwave Plasma Conversion of Hydrocarbon Wastes into Useful Fuels and Chemicals,” *Environmental Science & Technology* **55** (2021) 6239-6247.
190. L. Chen, A.N. Alshwabkeh, S. Hojabri, M. Sun, G-Y. Xu and J. Li, “A Robust Flow-Through Platform for Organic Contaminant Removal,” *Cell Reports Physical Science* **2** (2021) 100296.
189. W-B. Li, X-F. Qian and J. Li, “Phase transitions in 2D materials,” *Nature Reviews Materials* (2021) 10.1038/s41578-021-00304-0
188. J-H. Lee, C. Wang, R. Malik, Y-H. Dong, Y-M. Huang, D-H. Seo and J. Li, “Determining the Criticality of Li-Excess for Disordered-Rocksalt Li-Ion Battery Cathodes,” *Advanced Energy Materials* **11** (2021) 2100204.
187. H-M. Fan, S. Li, Y. Yu, H. Xu, M-W. Jiang, Y-H. Huang and J. Li, “Air-Stable Li_xAl Foil as Free-Standing Electrode with Improved Electrochemical Ductility by Shot-Peening Treatment,” *Advanced Functional Materials* (2021) 2100978.
186. B. Han, Z. Zhang, Y-C. Zou, K. Xu, G-Y. Xu, H. Wang, H. Meng, Y-H. Deng, J. Li and M. Gu, “Poor Stability of Li_2CO_3 in the Solid Electrolyte Interphase of a Lithium-Metal Anode Revealed by Cryo-Electron Microscopy,” *Advanced Materials* (2021) 2100404.
185. J. Zhou, H-W. Xu, Y-L. Shi and J. Li, “Terahertz Driven Reversible Topological Phase Transition of Monolayer Transition Metal Dichalcogenides,” *Advanced Science* (2021) 2003832.
184. W-J. Xue, M-J. Huang, Y-T. Li, Y.G. Zhu, R. Gao, X-H. Xiao, W-X. Zhang, S-P. Li, G-Y. Xu, Y. Yu, P. Li, J. Lopez, D-W. Yu, Y-H. Dong, W-W. Fan, Z. Shi, R. Xiong, C-J. Sun, I-H. Hwang, W-K. Lee, Y. Shao-Horn, J.A. Johnson and J. Li, “Ultra-high-voltage Ni-rich layered cathodes in practical Li metal batteries enabled by a sulfonamide-based electrolyte,” *Nature Energy* **6** (2021) 495–505.
183. Y-Q. Zhang, K. Chen, H. Shen, Y-C. Wang, M.N. Hedhili, X-X. Zhang, J. Li and Z-W. Shan, “Achieving room-temperature M_2 -phase VO_2 nanowires for superior thermal actuation,” *Nano Research* (2021) 10.1007/s12274-021-3355-6
182. M-S. Yoon, Y-H. Dong, J-S. Hwang, J-K. Sung, H-Y. Cha, K-H. Ahn, Y-M. Huang, S.J. Kang, J. Li and J-P. Cho, “Reactive boride infusion stabilizes Ni-rich cathodes for lithium-ion batteries,” *Nature Energy* **6** (2021) 362–371.

181. R. Gao, M-M. Jin, Q-J. Li, K.P. So, L-F. Zhang, X-P. Wang, Q-F. Fang, C. Sun, L. Shao and J. Li, “Hybrid diffusive-displacive helium outgassing in Cu/Nb multilayer composites,” *Scripta Materialia* **194** (2021) 113706.
180. H-W. Xu, H. Wang, J. Zhou, Y-F. Guo, J. Kong and J. Li, “Colossal switchable photocurrents in topological Janus transition metal dichalcogenides,” *npj Computational Materials* **7** (2021) 31.
179. X. Xiao, J. Zhou, K-P. Song, J-J. Zhao, Y. Zhou, P.N. Rudd, Y. Han, J. Li and J-S. Huang, “Layer number dependent ferroelasticity in 2D Ruddlesden–Popper organic-inorganic hybrid perovskites,” *Nature Communications* **12** (2021) 1332.
178. C-Q. Dang, J-P. Chou, B. Dai, C-T. Chou, Y. Yang, R. Fan, W-T. Lin, F-L. Meng, A. Hu, J-Q. Zhu, J-C. Han, A.M. Minor, J. Li and Y. Lu, “Achieving large uniform tensile elasticity in microfabricated diamond,” *Science* **371** (2021) 76-78.
177. H-H. Lu, Z-J. Wang, D. Yun, J. Li and Z-W. Shan, “A new approach of using Lorentz force to study single-asperity friction inside TEM,” *Journal of Materials Science & Technology* **84** (2021) 43-48.
176. S.T. Lam, Q-J. Li, J. Mailoa, C. Forsberg, R. Ballinger and J. Li, “The impact of hydrogen valence on its bonding and transport in molten fluoride salts,” *Journal of Materials Chemistry A* **9** (2021) 1784.
175. Y-H. Dong, Y-M. Huang, D. Ding, W. Wu, X-H. Yao and J. Li, “Chemical and structural origin of hole states in yttria-stabilized zirconia,” *Acta Materialia* **203** (2021) 116487.
174. P-H. Cao, K.P. So, Y. Yang, J.G. Park, M-D. Li, L. Yan, J. Hu, M. Kirk, M-M. Li, Y.H. Lee, M.P. Short and J. Li, “Carbon nanotube (CNT) metal composites exhibit greatly reduced radiation damage,” *Acta Materialia* **203** (2021) 116483.
173. C-L. Ren, Y. Yang, Y-G. Li, P. Huai, Z-Y. Zhu and J. Li, “Sample spinning to mitigate polarization artifact and interstitial-vacancy imbalance in ion-beam irradiation,” *npj Computational Materials* **6** (2020) 189.
172. Z-Q. Wang, X-Y. Li, Y-M. Chen, K. Pei, Y-W. Mai, S-L. Zhang and J. Li, “Creep-Enabled 3D Solid-State Lithium-Metal Battery,” *Chem* **6** (2020) 2878-2892.
171. Z. Shi, M. Dao, E. Tsymbalov, A. Shapeev, J. Li and S. Suresh, “Metallization of diamond,” *PNAS* **117** (2020) 24634-24639.
170. J-P. Du, W.T. Geng, K. Arakawa, J. Li and S. Ogata, “Hydrogen-Enhanced Vacancy Diffusion in Metals,” *Journal of Physical Chemistry Letters* **11** (2020) 7015-7020.
169. J-H. Lee, D-W. Yu, Z. Zhu, X-H. Yao, C. Wang, Y-H. Dong, R. Malik and J. Li, “Kinetic Rejuvenation of Li-Rich Li-Ion Battery Cathodes upon Oxygen Redox,” *ACS Applied Energy Materials* **3** (2020) 7931–7943.

168. H-W. Xu, J. Zhou, H. Wang and J. Li, "Giant Photonic Response of Mexican-Hat Topological Semiconductors for Mid-infrared to Terahertz Applications," *Journal of Physical Chemistry Letters* **11** (2020) 6119-6126.
167. J-S. Zhang, Y-N. Liu, H. Yang, Y. Ren, L-S. Cui, D-Q. Jiang, Z-G. Wu, Z-Y. Ma, F-M. Guo, S. Bakhtiari, F. Motazedian and J. Li, "Achieving 5.9% elastic strain in kilograms of metallic glasses: Nanoscopic strain engineering goes macro," *Materials Today* **37** (2020) 18-26.
166. R. Gao, M-M. Jin, F. Han, B-M. Wang, X-P. Wang, Q-F. Fang, Y-H. Dong, C. Sun, L. Shao, M-D. Li and J. Li, "Superconducting Cu/Nb nanolaminate by coded accumulative roll bonding and its helium damage characteristics," *Acta Materialia* **197** (2020) 212-223.
165. Z. Zhu, R. Gao, I. Waluyo, Y-H. Dong, A. Hunt, J-H. Lee and J. Li, "Stabilized Co-Free Li-Rich Oxide Cathode Particles with An Artificial Surface Preconstruction," *Advanced Energy Materials* (2020) 2001120.
164. Y-M. Huang, Y-H. Dong, S. Li, J-H. Lee, C. Wang, Z. Zhu, W-J. Xue, Y. Li and J. Li, "Lithium Manganese Spinel Cathodes for Lithium-Ion Batteries," *Advanced Energy Materials* (2020) 2000997.
163. J. Duan, Y-H. Zheng, W. Luo, W-Y. Wu, T-R. Wang, Y. Xie, S. Li, J. Li and Y-H. Huang, "Is graphite lithiophobic or lithiophilic?" *National Science Review* **7** (2020) 1208-1217.
162. H. Xu, S. Li, X-L. Chen, C. Zhang, Z-Q. Tang, H-M. Fan, Y. Yu, W-J. Liu, N. Liang, Y-H. Huang and J. Li, "Surpassing lithium metal rechargeable batteries with self-supporting Li-Sn-Sb foil anode," *Nano Energy* **74** (2020) 104815.
161. X-H. Yao, K. Klyukin, W-J. Lu, M. Onen, S-C. Ryu, D-H. Kim, N. Emond, I. Waluyo, A. Hunt, J.A. del Alamo, J. Li and B. Yildiz, "Protonic solid-state electrochemical synapse for physical neural networks," *Nature Communications* **11** (2020) 3134.
160. S.K. Elsaidi, M.H. Mohamed, A.S. Helal, M. Galanek, T. Pham, S. Suepaul, B. Space, D. Hopkinson, P.K. Thallapally and J. Li, "Radiation-resistant metal-organic framework enables efficient separation of krypton fission gas from spent nuclear fuel," *Nature Communications* **11** (2020) 3103.
159. Z. Zhu, D-W. Yu, Z. Shi, R. Gao, X-H. Xiao, I. Waluyo, M-Y. Ge, Y-H. Dong, W-J. Xue, G-Y. Xu, W-K. Lee, A. Hunt and J. Li, "Gradient-morph LiCoO₂ single crystals with stabilized energy density above 3400 Wh/L," *Energy & Environmental Science* **13** (2020) 1865-1878.
158. C. Wang, X-P. Zhao, F-F. Liu, Y-M. Chen, X-H. Xia, and J. Li, "Dendrimer-Au Nanoparticle Network Covered Alumina Membrane for Ion Rectification and Enhanced Bioanalysis," *Nano Letters* **20** (2020) 1846-1854.
157. X-Y. Li, L. Zhang, Y-H. Dong, R. Gao, M-L. Qin, X-H. Qu and J. Li, "Pressureless two-step sintering of ultrafine-grained tungsten," *Acta Materialia* **186** (2020) 116-123.

156. Y. Xie, G-Y. Pan, Q. Jin, X-Q. Qi, T. Wang, W. Li, H. Xu, Y-H. Zheng, S. Li, L. Qie, Y-H. Huang and J. Li, "Semi-Flooded Sulfur Cathode with Ultralean Absorbed Electrolyte in Li-S Battery," *Advanced Science* (2020) 1903168.
155. H-M. Fan, B. Chen, S. Li, Y. Yu, H. Xu, M-W. Jiang, Y-H. Huang and J. Li, "Nanocrystalline Li-Al-Mn-Si Foil as Reversible Li Host: Electronic Percolation and Electrochemical Cycling Stability," *Nano Letters* **20** (2020) 896-904.
154. K. Chen, R-Q. Huang, Y. Li, S-C. Lin, W-X. Zhu, N. Tamura, J. Li, Z-W. Shan and E. Ma, "Rafting-Enabled Recovery Avoids Recrystallization in 3D-Printing-Repaired Single-Crystal Superalloys," *Advanced Materials* **32** (2020) 1907164.
153. Y-M. Chen, Z-Q. Wang, X-Y. Li, X-H. Yao, C. Wang, Y-T. Li, W-J. Xue, D-W. Yu, S.Y. Kim, F. Yang, A. Kushima, G-G. Zhang, H-T. Huang, N. Wu, Y-W. Mai, J.B. Goodenough and J. Li, "Li metal deposition and stripping in a solid-state battery via Coble creep," *Nature* **578** (2020) 251-255.
152. W-J. Xue, Z. Shi, M-J. Huang, S-T. Feng, C. Wang, F. Wang, J. Lopez, B. Qiao, G-Y. Xu, W-X. Zhang, Y-H. Dong, R. Gao, Y. Shao-Horn, J.A. Johnson and J. Li, "FSI-inspired solvent and "full fluorosulfonyl" electrolyte for 4 V class lithium-metal batteries," *Energy & Environmental Science* **13** (2020) 212-220.
151. T. Dai, L. Yang, X-H. Ning, D-L. Zhang, R.L. Narayan, J. Li and Z-W. Shan, "A low-cost intermediate temperature Fe/Graphite battery for grid-scale energy storage," *Energy Storage Materials* **25** (2020) 801-810.
150. Y. Yu, S. Li, H-M. Fan, H. Xu, M-W. Jiang, Y-H. Huang and J. Li, "Optimal annealing of Al foil anode for prelithiation and full-cell cycling in Li-ion battery: The role of grain boundaries in lithiation/ delithiation ductility," *Nano Energy* **67** (2020) 104274.
149. W-J. Xue, D-W. Yu, L-M. Suo, C. Wang, Z-Q. Wang, G-Y. Xu, X-H. Xiao, M-Y. Ge, M-S. Ko, Y-M. Chen, L. Qie, Z. Zhu, A.S. Helal, W-K. Lee and J. Li, "Manipulating Sulfur Mobility Enables Advanced Li-S Batteries," *Matter* **1** (2019) 1047-1060.
148. Z. Zhu, D-W. Yu, Y. Yang, C. Su, Y-M. Huang, Y-H. Dong, I. Waluyo, B-M. Wang, A. Hunt, X-H. Yao, J-H. Lee, W-J. Xue and J. Li, "Gradient Li-rich oxide cathode particles immunized against oxygen release by a molten salt treatment," *Nature Energy* **4** (2019) 1049-1058.
147. J. Zhou, S-H. Zhang and J. Li, "Normal-to-topological insulator martensitic phase transition in group-IV monochalcogenides driven by light," *NPG Asia Materials* **12** (2019) 2.
146. W-J. Xue, D-W. Yu, L-M. Suo, C. Wang, Z-Q. Wang, G-Y. Xu, X-H. Xiao, M-Y. Ge, M-S. Ko, Y-M. Chen, L. Qie, Z. Zhu, A.S. Helal, W-K. Lee and J. Li, "Manipulating Sulfur Mobility Enables Advanced Li-S Batteries," *Matter* **1** (2019) 1047-1060.
145. C. Su, Z-Y. Yin, Q-B. Yan, Z-G. Wang, H-T. Lin, L. Sun, W-S. Xu, T. Yamada, X. Ji, N. Zettsu, K. Teshima, J.H. Warner, M. Dinca, J-J. Hu, M-D. Dong, G. Su, J. Kong and J. Li, "Waterproof molecular monolayers stabilize 2D materials," *PNAS* **116** (2019) 20844-20849.

144. H-W. Xu, J. Zhou, Y-F. Li, R. Jaramillo and J. Li, "Optomechanical control of stacking patterns of h-BN bilayer," *Nano Research* **12** (2019) 2634-2639.
143. X-L. Yang, T-L. Feng, J. Li and X-L. Ruan, "Stronger role of four-phonon scattering than three-phonon scattering in thermal conductivity of III-V semiconductors at room temperature," *Phys. Rev. B* **100** (2019) 245203.
142. M-S. Yoon, Y-H. Dong, Y-B. Yoo, S-J. Myeong, J-S. Hwang, J-H. Kim, S-H. Choi, J-K. Sung, S.J. Kang, J. Li and J-P. Cho, "Unveiling Nickel Chemistry in Stabilizing High-Voltage Cobalt-Rich Cathodes for Lithium-Ion Batteries," *Adv. Funct. Mater.* (2019) 1907903
141. H. Xu, S. Li, C. Zhang, X-L. Chen, W-J. Liu, Y-H. Zheng, Y. Xie, Y-H. Huang and J. Li, "Sn-Alloy Foil Electrode with Mechanical Prelithiation: Full-Cell Performance up to 200 Cycles," *Adv. Energy Mater.* (2019) 1902150.
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139. D-G. Xie, Z-Y. Nie, S. Shinzato, Y-Q. Yang, F-X. Liu, S. Ogata, J. Li, E. Ma and Z-W. Shan, "Controlled growth of single-crystalline metal nanowires via thermomigration across a nanoscale junction," *Nature Communications* **10** (2019) 4478.
138. Y. Liu, G. Liu, H. Xu, Y-H. Zheng, Y-H. Huang, S. Li and J. Li, "Low-temperature synthesized Li₄Mn₅O₁₂-like cathode with hybrid cation- and anion-redox capacities," *Chemical Communications* **55** (2019) 8118-8121.
137. C. Su, M. Tripathi, Q-B. Yan, Z-G. Wang, Z-H. Zhang, C. Hofer, H-Z. Wang, L. Basile, G. Su, M-D. Dong, J.C. Meyer, J. Kotakoski, J. Kong, J-C. Idrobo, T. Susi and J. Li, "Engineering single-atom dynamics with electron irradiation," *Science Advances* **5** (2019) eaav2252.
136. W-J. Xue, Z. Shi, L-M. Suo, C. Wang, Z-Q. Wang, H-Z. Wang, K.P. So, A. Maurano, D-W. Yu, Y-M. Chen, L. Qie, Z. Zhu, G-Y. Xu, J. Kong and J. Li, "Intercalation-conversion hybrid cathodes enabling Li-S full-cell architectures with jointly superior gravimetric and volumetric energy densities," *Nature Energy* **4** (2019) 374-382.
135. Y-H. Zheng, Y-X. Lu, X-G. Qi, Y-S. Wang, L-Q. Mu, Y-M. Li, Q. Ma, J. Li and Y-S. Hu, "Superior electrochemical performance of sodium-ion full-cell using poplar wood derived hard carbon anode," *Energy Storage Materials* **18** (2019) 269-279.
134. Z. Shi, E. Tsybalov, M. Dao, S. Suresh, A. Shapeev and J. Li, "Deep elastic strain engineering of bandgap through machine learning," *PNAS* **116** (2019) 4117-4122.
133. P-J. Yang, Q-J. Li, T. Tsuru, S. Ogata, J-W. Zhang, H-W. Sheng, Z-W. Shan, G. Sha, W-Z. Han, J. Li and E. Ma, "Mechanism of hardening and damage initiation in oxygen embrittlement of body-centred-cubic niobium," *Acta Mater.* **168** (2019) 331-342.

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131. Q. Yang, M-H. Wu and J. Li, "Origin of Two-Dimensional Vertical Ferroelectricity in WTe₂ Bilayer and Multilayer," *J. Phys. Chem. Lett.* **9** (2018) 7160-7164.
130. J. Zhou, H-W. Xu, Y-F. Li, R. Jaramillo and J. Li, "Opto-Mechanics Driven Fast Martensitic Transition in Two-Dimensional Materials," *Nano Letters* **18** (2018) 7794-7800.
129. R. Moormann, R.S. Kemp and J. Li, "Caution Is Needed in Operating and Managing the Waste of New Pebble-Bed Nuclear Reactors," *Joule* **2** (2018) 1911-1914.
128. W-W. Xia, Y. Yang, Q-P. Meng, Z-P. Deng, M-X. Gong, J. Wang, D-L. Wang, Y-M. Zhu, L-T. Sun, F. Xu, J. Li and H-L. L. Xin, "Bimetallic Nanoparticle Oxidation in Three Dimensions by Chemically Sensitive Electron Tomography and in Situ Transmission Electron Microscopy," *ACS Nano* **12** (2018) 7866-7874.
127. L. Li, Y-L. Xu, X-F. Sun, R. Chang, Y. Zhang, X-N. Zhang and J. Li, "Fluorophosphates from Solid-State Synthesis and Electrochemical Ion Exchange: NaVPO₄F or Na₃V₂(PO₄)₂F₃?" *Advanced Energy Materials* (2018) 1801064.
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