Ju Li

Employment

Massachusetts Institute of Technology Cambridge, MA 02139
School of Engineering Carl Richard Soderberg Professor of Power Engineering, Full Professor (7/2011-present), Department of Nuclear Science and Engineering and Department 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 Minerals, Metals & Materials Society (2022)

Research.com top scientist (89th in 2022) in materials science: https://research.com/scientists-rankings/materials-science/us

Fellow of the American Association for the Advancement of Science (2020)

Webometrics $h > 100$ list (global rank 3169 Mar 2022; 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 worldwide 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

7. July 9, 2019: US Patent 10347911, "Lithium hydrogen titanate Li—H—Ti—O material and method for making the same," Zi-Long Tang, Shi-Tong Wang, Zhong-Tai Zhang, Ju Li.
6. 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.

5. May 29, 2018: US Patent 9985327, "Air secondary battery," Tetsuya Koido, Akihiro Kushima, Yoshiya Fujiwara, Ju Li.

4. April 24, 2018: US Patent 9954262, "Air secondary battery including cathode having trap portion," Tetsuya Koido, Akihiro Kushima, Yoshiya Fujiwara, Ju Li.

3. Nov. 7, 2017: US Patent 9808782, "Optoelectronic devices including twisted bilayers," Ju Li, Xiaofeng Qian, Menghao Wu.

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 (670+ peer-reviewed papers, 75,000+ SCI cites, h-index 141)[1]

342. S. Alipour, J.Y. Kim, M.S. Kim, A. Emdadi and J. Li, "Strong and ductile additively manufactured Ti-6Al-4V through yttrium inoculation," *Materials Science & Engineering A* **960** (2026) 150075.

341. S-W. Ham, C. Kwon, M-H. Kim, H.L. Cha, H-A. Kim, J-I. Yun, J.W. Park, J-W. Lee, S-Y. Paek, J-S. Zhang, J. Li and S-T. Kim, "Corrosion-resistant coatings in molten salts suggested by computational phase-stability diagrams," *Acta Materialia* **309** (2026) 122063.

340. W-B. Chen, L. Feng, B-B. Ma, L. Zhang, Z. Du, F-Q. Meng, S-Y. Wang, S-B. Xi, X. Hai, R-Q. Zhong, J. Zhang, J. Lu, J. Li and R-Q. Zou, "Click-locking strategy enables automated synthesis of single-atom catalysts with industrial compatibility," *Nature Synthesis* (2026) 10.1038/s44160-026-01004-9.

339. S. Alipour, A. Emdadi and J. Li, "Recent advances toward damage-tolerant 3D-printed titanium alloys: Alloy design perspective," *Journal of Applied Physics* **139** (2026) 040701.

338. S-F. Fan, H-Y. Wang, C-T. Chou, J-Z. Chen, Y. Han, J-Z. Zhou, X-C. Li, J-P. Chou, J. Li and Y. Lu, "Deep Elastic Strain Engineering of Free-Standing GaN Microbridge," *Physical Review X* **16** (2026) 011014.

337. T.D. Dolezal, R. Freitas and J. Li, "Spectral sampling of boron diffusion in Ni alloys: Cr and Mo effects on bulk and grain boundary transport," *Acta Materialia* **306** (2026) 121841.

336. M-S. Kong, Z. Zhang, W-Y. Chen, E. Y-P. Zheng, A. Penn and J. Li, "A Facile Route to Large-Area 2D Pt," *Advanced Science* **13** (2026) e17427.

[1] ResearcherID: 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
AD Scientific Index: https://www.adscientificindex.com/scientist/ju-li/1324670

335. Z. Zhang, Z-C. Ren, C-W. Hsu, W-B. Chen, Z-W. Hong, C-F. Lee, A. Penn, H-B. Xu, D.J. Zheng, S-H. Miao, Y-M. Huang, Y-F. Gao, W-Y. Chen, H. Smith, Y-S. Niu, Y-S. Tian, Y-R. Lu, Y-C. Shao, S-P. Li, H-T. Wang, I.I. Abate, P. Agrawal, Y. Shao-Horn and J. Li, "A multimodal robotic platform for multi-element electrocatalyst discovery," *Nature* **647** (2025) 390-396.

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313. M-T. Huang, L-L. Xu, J.A. del Alamo, J. Li and B. Yildiz, "Nonlinear Ion Dynamics Enable Spike Timing Dependent Plasticity of Electrochemical Ionic Synapses," *Advanced Materials* **37** (2025) 2418484.

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311. L. Mei, Z. Gao, R-J. Yang, Z. Zhang, M-Z. Sun, X-Y. Liang, Y-F. Zhang, T. Ying, H-L. Hu, D-F. Li, Q-H. Zhang, M.D. Gu, L. Gu, J. Zhou, B-L. Huang, D. Voiry, X.C. Zeng, Y. Chai, J. Li, X-G. Yu and Z-Y. Zeng, "Phase-switchable preparation of solution-processable WS2 mono- or bilayers," *Nature Synthesis* **4** (2025) 303-313.

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309. E. Tekoglu, J-S. Bae, H-A. Kim, K-H. Lim, J. Liu, T.D. Doležal, S.Y. Kim, M.A. Alrizqi, A. Penn, W. Chen, A.J. Hart, J-H. Kang, C-S. Oh, J-W. Park, F. Sun, S-T. Kim, G-D. Sim and J. Li, "Superior high-temperature mechanical properties and microstructural features of LPBF-printed In625-based metal matrix composites," *Materials Today* **80** (2024) 297-307.

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303. M. Laurenti, Q-J. Li and J. Li, "Time mesh independent framework for learning materials constitutive relationships," *Engineering Applications of Artificial Intelligence* **137** (2024) 109165.

302. Y-S. Niu, Z-L. Hu, H-C. Mao, L. Zhou, L-G. Wang, X-B. Lou, B. Zhang, D-D. Xiao, Y. Yang, F-X. Ding, X-H. Rong, J-P. Xu, W. Yin, N. Zhang, Z-W. Li, Y-X. Lu, B-W. Hu, J. Lu, J. Li and Y-S. Hu, "A "seat-squatting" strategy via lithium substitution to suppress Fe-migration in Na layered oxide cathodes," *Energy & Environmental Science* **17** (2024) 7958.

301. Y-M. Huang, Y-H. Dong, Y. Yang, T-C. Liu, M-S. Yoon, S-P. Li, B-M. Wang, E.Y.P. Zheng, J-H. Lee, Y-W. Sun, Y. Han, J. Ciston, C. Ophus, C-Y. Song, A. Penn, Y-Q. Liao, H-J. Ji, T. Shi, M-G. Liao, Z-X. Cheng, J-W. Xiang, Y. Peng, L. Ma, X-H. Xiao, W. H. Kan, H-C. Chen, W. Yin, L-L. Guo, W-R. Liu, R. Muruganantham, C-C. Yang, Y-T. Zhu, Q-J. Li and J. Li, "Integrated rocksalt-polyanion cathodes with excess lithium and stabilized cycling," *Nature Energy* **9** (2024) 1497.

300. H-W. Xu, C-H. Li, G-Q. Wang, H. Tang, P. Cappellaro and J. Li, "Efficient quantum transduction using antiferromagnetic topological insulators," *Physical Review B* **110** (2024) 085136.

299. C-H. Tung and J. Li, "The anti-dogbone: Evaluating and designing optimal tensile specimens for deep learning of constitutive relations," *Extreme Mechanics Letters* **69** (2024) 102157.

298. Z. Zhu, S-L. Xu, Z-J. Wang, X-H. Yan, G-Y. Xu, Y-M. Huang, Y-P. Wu, Y. Zhang and J. Li, "Avoiding electrochemical indentations: a CNT-cocooned LiCoO2 electrode with ultra-stable high-voltage cycling," *Energy Environ. Sci.* **17** (2024) 6102-6112.

297. Y-C. Wang, X-D. Wang, J. Ding, B-M. Liang, L-L. Zuo, S-C. Zheng, L-C. Huang, W. Xu, C-W. Fan, Z-Q. Duan, C-D. Jia, R. Zheng, Z. Liu, W. Zhang, J. Li, E. Ma and Z-W. Shan, "Inward motion of diamond nanoparticles inside an iron crystal," *Nature Communications* **15** (2024) 4659.

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291. Y-S. Jung and J. Li, "Boron-10 stimulated helium production and accelerated radiation displacements for rapid development of fusion structural materials," *J. Materiomics* **10** (2024) 377-385.

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276. Z-C. Ren, Z-K. Ren, Z. Zhang, T. Buonassisi and J. Li, "Autonomous experiments using active learning and AI," *Nature Reviews Materials* **8** (2023) 563–564.

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