Haimei Zheng
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Appointments

2018-	Senior Scientist, Materials Sciences Division, Lawrence Berkeley National Lab (LBNL), Berkeley, CA
2013-	Adjunct Professor, Materials Science Engineering, UC Berkeley, CA
2010-2017	Staff Scientist, Materials Sciences Division, LBNL, Berkeley, CA

Education & Training

Postdoc	LBNL & UC Berkeley	Electron Microscopy & Chemistry	2006-2010
Postdoc	UC Berkeley	Materials Sci. Eng. & Physics	2005-2006
Ph.D.	University of Maryland, College Park	Materials Sci. Eng.	2004
M.S.	Tianjin University	Materials Sci. Eng.	1997
B.S.	Chongqing University	Materials Sci. Eng.	1992

Honors & Awards

2023	Microscopy Society of America Fellow
2021	Materials Research Society Fellow
2019	Materials Research Society Medal Award
2013	LBNL Director's Award for Exceptional Scientific Achievement
2011	DOE Office of Science Early Career Award
2003	Materials Research Society Graduate Student Gold Medal Award

Professional Membership

Materials Research Society, Microscopy Society of America, American Physical Society, American Chemical Society, The Electrochemical Society

Synergistic Activity & Service

Editorial Service:

- Member of the Editorial Board, *Scientific Report*, 2018-present.
- Member of the Editorial Advisory Board, *Chem*, 2016-present.
- Guest Editor, *Frontiers in Chemistry* Catalytic Reactions and Chemistry "Seeing atomic dynamics of nanocatalysts during reactions" 2024.
- Guest Editor, *Cell Press* special collection "Advances and applications of liquid-phase transmission electron microscopy" 2024.
- Guest Editor, *Applied Physics Reviews* special issue "Frontiers in energy materials research: novel measurement, modeling and processing approaches" 2024.
- Guest Editor, *MRS Bulletin* special issue "Liquid phase electron microscopy" 2020.
- Guest Editor, *Accounts of Chemical Research* special issue "Direct visualization of chemical and self-assembly processes with transmission electron microscopy" 2017.
- Guest Editor, *MRS Bulletin* special issue "Frontiers of in situ electron microscopy" 2015.

Conference Organization:

- Chair, GRC "Liquid Phase Electron Microscopy", Vice Chair 2024, Chair 2026.
- Organizer, Symposium on "Organic chemistry: applications of liquid phase electron microscopy and other advanced electron microscopy methods" in Physical Science Division, 20th International Microscopy Congress (IMC20), Busan, Korea, September 9-15, 2023.
- Co-chair, MRS Fall Meeting, 2022.

- Organizer, Symposium on "Direct visualization of chemical and self-assembly processes with high-resolution microscopy," The International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, Hawaii, December 15-20, 2021.
- Organizer, Symposium on "In situ TEM characterization of dynamic processes during materials synthesis and processing," Microscopy & Microanalysis, Portland, Oregon, August 4-8, 2019.
- Organizer, Symposium on "In situ and operando microscopy of electronic and energy materials," XXVII International Materials Research Congress, Cancun, Mexico, August 19-24, 2018.
- Organizer, Symposium on "In situ electron microscopy of dynamic materials and phenomena," MRS Spring Meeting & Exhibit, Phoenix, Arizona, April 17-21, 2017.
- Organizer and Chair, DOE Office of Science Workshop on "Future Electron Scattering & Diffraction," Rockville, Maryland, February 25-26, 2014.
- Organizer, Symposium on "In situ microscopy" at Microscopy & Microanalysis, Hartford, Connecticut, August 3-7, 2014.
- Session Chairs for MRS Meetings (2022-2026 Spring & Fall, 2018 Spring, 2017 Fall & Spring, 2016-2013 Fall, 2010 Spring).

Reviewer:
Science, Nature, Nature Materials, Nature Catalysis, Nature Energy, Nature Nanotechnology, Nature Communications, Science Advances, Nano Letters, ACS Nano, ACS Catalysis, Annual Review of Physical Chemistry, Ultramicroscopy (among others).

Other Services:
- MRS Topical Curation Subcommittee Member (2024-present)
- MRS Awards Subcommittee Chair (2021-2025)

Highlighted Publications (selected from **182** publications; **2** book chapters; H-index **77**, total citation **33,460+** according to google scholar)

1. Q. Zhang, M. C. Gallant, Y. Chen, Z. Song, Y. Liu, Q. Zheng, L. Chen, K. C. Bustillo, Y. Huang, K. A. Persson, H. Zheng*, "Isothermal solidification for high-entropy alloy synthesis", ***Nature*** 646, 323–330 (2025).
2. Q. Zhang, Z. Song, X. Sun, Y. Liu, J. Wan, S. B. Betzler, Q. Zheng, J. Shangguan, K. C. Bustillo, P. Ercius, P. Narang, Y. Huang, H. Zheng*, "Atomic dynamics of electrified solid-liquid interfaces in liquid cell TEM", ***Nature*** 630, 643 (2024).
3. W. Zheng, J. Kang, K. Niu, C. Ophus, E. M. Chan, P. A. Ercius, J. Wu, L. W. Wang, H. Zheng*, "Reversible nanocrystal transformations between solid and viscous-liquid-like phase" ***Science Advances*** 10, eadn6426 (2024).
4. Y. Xie, J. Wang, B. H. Savitzky, Z. Chen, Y. Wang, S. Betzler, K. C. Bustillo, K. Persson, Y. Cui, L. Wang, C. Ophus*, P. Ercuis*, H. Zheng*, "Spatially resolved structural order in low temperature liquid electrolyte." ***Science Advances*** 9, eadc9721 (2023).
5. X. Peng, F. Zhu, Y. Jiang, J. Sun, L. Xiao, S. Zhou, K. C. Bustillo, L. Lin, J. Cheng, J. Li, H. Liao, S. Sun. H. Zheng*, "Identification of a quasi-liquid phase at solid-liquid interface." ***Nature Communications*** 13, 3601 (2022).
6. W. Wang, Tao Xu, J. Chen, J. Shangguan, H. Dong, H. Ma, Q. Zhang, J. Yang, T. Bai, Z. Guo, H. Fang, H. Zheng*, L. Sun*, "Solid-liquid-gas reaction accelerated by gas molecule tunneling-like effect." ***Nature Materials*** 21, 859–863 (2022).
7. Q. Zhang, X. Peng, Y. Nie, Q. Zheng, J. Shangguan, Chao Zhu, K. C. Bustillo, P. Ercius, L. Wang, D. T. Limmer, H.Zheng*, "Defect-mediated ripening of core-shell nanostructures." ***Nature Communications*** 13, 2211 (2022).
8. S. Lee, J. Shangguan, J. Alvarado, S. Betzler, S. J Harris, M. M Doeff, H. Zheng*, "Unveiling the mechanisms of lithium dendrite suppression by cationic polymer film induced solid electrolyte interphase modification." ***Energy & Environmental Science*** 13, 1832-1842 (2020).

9. J. Yang, Z. Zeng, J. Kang, C. Czarnik, X. Zhang, C. Ophus, C. Yu, K. Bustillo, M. Pan, J. Qiu*, L. W. Wang*, H. Zheng*, "Formation of two-dimensional transition metal oxide nanosheets with nanoparticles as intermediates." ***Nature Materials*** 18, 970-976 (2019).
10. Y. Wang, X. Peng, A. Abelson, P. Xiao, C. Qian, L. Yu, C. Ophus, P. Ercius, L.Wang, M. Law, H. Zheng*, "Dynamic deformability of individual PbSe nanocrystals during superlattice phase transitions." ***Science Advances*** 5, eaaw5623 (2019).
11. C. Zhu, S. Liang, E. Song, Y. Zhou, W. Wang, F. Shan, Y. Shi, C. Hao, K. Yin, T. Zhang, J. Liu, H. Zheng*, L. Sun*, "In-situ liquid cell transmission electron microscopy investigation on oriented attachment of gold nanoparticles." ***Nature Communications*** 9, 421 (2018).
12. K. Niu, Y. Xu, H. Wang, R. Ye, H. L. Xin, F. Lin, C. Tian, Y. Lum, K. C. Bustillo, M. M. Doeff, M. T. M. Koper, J. Ager, R. Xu*, H. Zheng*, "A spongy nickel-organic CO_2 reduction photocatalyst for nearly 100% selective CO production." ***Science Advances*** 3, e1700921 (2017).
13. H. G. Liao, D. Zherebetskyy, H. Xin, C. Czarnik, P. Ercius, H. Elmlund, M. Pan, L. W. Wang, H. Zheng*, "Facet development during platinum nanocube growth." ***Science*** 345, 916-919 (2014).
14. Z. Zeng, W. Liang, H. G. Liao, H. L. Xin, Y. H. Chu, H. Zheng*, "Visualization of electrode-electrolyte interfaces in $LiPF_6$/EC/DEC electrolyte for lithium ion batteries via in-situ TEM." ***Nano Letters*** 14, 1745-1750 (2014).
15. H. G. Liao, L. Cui, S. Whitelam, H. Zheng*, "Real time imaging Pt_3Fe nanorod growth in solution." ***Science*** 336, 1011-1014 (2012).
16. H. Xin, H. Zheng*, "In situ observation of oscillatory growth of bismuth nanoparticles." ***Nano Letters*** 12, 1470-1474 (2012).
17. H. Zheng*, J. B. Rivest, T. Miller, B. Sadtler, A. Lindenberg, M. F Toney, L. W. Wang, C. Kisielowski, A. P. Alivisatos*, "Observation of transient structural-transformation dynamics in a Cu_2S nanorod." ***Science*** 333, 206-209 (2011).
18. H. Zheng, R. K. Smith, Y. W. Jun, C. Kisielowski, U. Dahmen*, A. P. Alivisatos*, "Observation of single colloidal platinum nanocrystal growth trajectories." ***Science*** 324, 1309-1312 (2009).
19. H. Zheng, J. Wang, S. E. Lofland, Z. Ma, L. Mohaddes-Ardabili, T. Zhao, L. Salamanca-Riba, S. R. Shinde, S. B. Ogale, F. Bai, D. Viehland, Y. Jia, D. G. Schlom, M. Wuttig, A. Roytburd, R. Ramesh*, "Multiferroic $BaTiO_3$-$CoFe_2O_4$ nanostructures." ***Science*** 303, 661-663 (2004).

Research Advisement

Postdoctoral researchers
Ph.D students
Undergraduate students

Teaching

2026 Spring, *Group Studies (Scanning Electron Microscopy)* MSE298; *Individual Study & Research* MSE299, UC Berkeley

2025 Spring, *Electron Microscopy Laboratory* MSE241 (1 semester; 4-credit; 2 90-miniute lectures + 12 hours Lab per week), UC Berkeley

2025 Fall, *Group Studies (Scanning Electron Microscopy)* MSE298; *Individual Study & Research* MSE299, UC Berkeley

2022 & 2020 Spring, *Nanomaterials for Scientists and Engineers* MSEI140, UC Berkeley (1 semester; 3-credit; 90-miniute lecture, 2 times per week)

2018 & 2016 Spring, *Electron Microscopy and Microanalysis* MSE241, UC Berkeley (1 semester; 2-credit; 1 50-miniute lecture & 4 lab hours per week)

2015, 2016, 2017, 2018, 2019, 2022, 2023, 2024, MSE298 & MSE299, UC Berkeley