

FENGWANG LI, PhD

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RESEARCH SUMMARY

Since 2020, I have started up and led the Electrochemical Engineering Laboratory at The University of Sydney. Specialising in electrochemistry, catalysis, nanomaterials and chemical engineering, our mission is to create a carbon-net-zero future by advancing new chemistry and processes able to produce sustainable fuels and chemicals using only renewable resources (e.g., water, air, biomass) – powered by renewable electricity instead of fossil fuels. Over the past three years, LEE has secured over \$8.1 million in research income to support our research. We have produced significant outcomes, including publishing over 10 articles per year in top 10% journals such as *Science* and obtaining two patents. Since 2020, I have trained over 20 higher degree research students and postdoctoral researchers, given over 10 invited talks per year in conferences and research institutes, and reached out to more than 400 members from the general public through outreach events.

EMPLOYMENT

2024 –	University of Sydney	Senior Lecturer
2020 – 2023	University of Sydney	Lecturer, DECRA Fellow
2018 – 2020	University of Toronto	Postdoctoral Fellow
	Advisor: Prof. Edward H. Sargent	
	Research focus: Catalysts and systems for CO ₂ conversion	
2016	University of Warwick	Visiting Scholar
	Supervisor: Prof. Patrick R. Unwin	
	Research focus: Scanning electrochemical cell microscopy	

EDUCATION

2020 – 2021	University of Sydney	Graduate Certificate in Educational Studies (Higher Education)
2014 – 2017	Monash University	PhD in Chemistry (Conferred on 16 Nov 2017)
	Thesis: Two-dimensional catalysts for CO ₂ reduction	
	Supervisor: A/Prof. Jie Zhang, Prof. Douglas R. MacFarlane	
2010 – 2013	Renmin University of China	MEng in Applied Chemistry
	Thesis: Unconventional nanofabrication methods	
	Supervisor: Prof. Meining Zhang, Prof. Tingbing Cao	
2006 – 2010	Renmin University of China	BS in Chemistry

HONOURS & AWARDS

Since 2020	World's Top 2% Scientists, ranked by Stanford University
2024	ARC Future Fellowship
2024	RACI A.M. Bond Medal
2024	Institution of Chemical Engineers & Elsevier Carbon Capture Future Leader Award
2023	Top 100 Entry in the Create the Future Design Contest by the Tech Briefs magazine
2023	Winner of Australian Museum Eureka Prize for Outstanding Early Career Researcher
2023	University of Sydney Research Accelerator (SOAR) Prize
2022	Royal Society of Chemistry <i>Nanoscale</i> Emerging Investigators
2021	MIT Technology Review 35 Innovators Under 35 (China list)
2021	Vice-Chancellor's Award for Outstanding Early Career Research
2021	Faculty of Engineering Dean's Award for Early Career Research Excellence
2021	Sydney Nano Publication Award
2021	Institution of Chemical Engineers Nicklin Medal
2021	Royal Society of Chemistry <i>Journal of Materials Chemistry A</i> Emerging Investigators
2020	Metrohm-RACI (Electrochemistry Division) Young Electrochemist Award
2019	ARC Discovery Early Career Researcher Award (DECRA)
2018	Mollie Holman Medal ("Best PhD thesis award"), Monash University

2017	Monash Publication Postgraduate Award
2016	Chinese Government Award for Outstanding Self-Financed Students Abroad
2013	Chinese National Scholarship for Graduate Students

PUBLICATIONS (†equal contribution; *corresponding author)

Total citations: 14,243, H-index: 56 (Google Scholar), 5-year Field-Weighted Citation Impact: 5.96 (Scopus).

Highlights: 1× *Nature*, 3× *Science*, 7× *Nat. Catal.*, 2× *Nat. Synth.*, 2× *Nat. Energy*, 12× *Nat. Commun.*, 4× *J. Am. Chem. Soc.* and 3× *Angew. Chem.*; 22 WoS ‘Highly Cited Paper’. **Scopus** **ORCID** **Google Scholar** **Web of Science**

1. Y. Yang[†], C. Zhang[†], C. Zhang[†], Y. Shi, J. Li, B. Johannessen, Y. Liang, S. Zhang, Q. Song, H. Zhang, J. Huang, J. Ke, L. Zhang, Q. Song, J. Zeng, Y. Zhang, Z. Geng, P.-S. Wang*, Z. Wang*, J. Zeng*, F. Li*, Ligand-tuning copper in coordination polymers for efficient electrochemical C–C coupling, **Nat. Commun.**, 2024, 15, 6316.
2. Y. Liang[†], F. Li[†], R. K. Miao[†], S. Hu, W. Ni, S. Zhang, Y. Liu, Y. Bai, H. Wan, P. Ou, X.-Y. Li, N. Wang, S. Park, F. Li*, J. Zeng*, D. Sinton*, E. H. Sargent*, Efficient ethylene electrosynthesis through water dissociation promoted C–O cleavage, **Nat. Synth.**, 2024, DOI: 10.1038/s44160-024-00568-8.
** Highlighted by Nature Synthesis News & Views: “Efficient ethylene electrosynthesis by accelerating water dissociation”.
3. J. Knezevic, T. Zhang*, R. Zhou*, J. Hong, R. Zhou, C. Barnett, Q., Y. Gao, W. Xu, D. Liu, N. Proschogo, B. Mohanty, J. Strachan, B. Soltani, F. Li, T. Maschmeyer, E. C. Lovell, P. J. Cullen*, Long-chain hydrocarbons from nonthermal plasma-driven biogas upcycling, **J. Am. Chem. Soc.**, 2024, 146, 12601-12608.
** Highlighted at over 20 media outlets, e.g., Reuters, AAAS EurekAlert!, ScienceDaily, Scienmag.
4. X. Ding, Y. Ji, H. Huang, J. Huang, S. Chen, C. Yang, F. Li, M. Luo*, Electrocatalysis of the ammonia oxidation reaction, **Chem Catal.**, 2024, 4, 100932.
5. Y. Yang, E. Xie, Z. Du, Z. Peng, Z. Han, L. Li, R. Zhao, Y. Qin, M. Xue, F. Li, K. Hua*, X. Yang*, Detection of various microplastics in patients undergoing cardiac surgery, **Environ. Sci. Technol.**, 2023, 57, 10911-10918.
6. Y. Yang, Y. Shi, H. Yu, J. Zeng, K. Li*, F. Li*, Mitigating carbonate formation in CO₂ electrolysis, **Next Energy**, 2023, 1, 100030.
7. W. Zhang, Y. Yang, Y. Li, F. Li*, M. Luo*, Recent progress on integrated CO₂ capture and electrochemical upgrading, **Mater. Today Catal.**, 2023, 2, 100006.
8. Y. Liang[†], J. Zhao[†], Y. Yang[†], S.-F. Hung, J. Li, S. Zhang, Y. Zhao, A. Zhang, C. Wang, D. Appadoo, L. Zhang, Z. Geng*, F. Li*, J. Zeng*, Stabilizing copper sites in coordination polymers toward efficient electrochemical C–C coupling, **Nat. Commun.**, 2023, 14, 474.
** Highlighted at Phys.org, Chines Academy of Sciences Newsroom, AZO Materials, etc.
** ‘Highly Cited Paper’ (Web of Science)
9. Y. Zhao[†], L. Hao[†], A. Ozden[†], S. Liu[†], R. K. Miao, P. Ou, T. Alkayyali, S. Zhang, J. Ning, Y. Liang, Y. Xu, M. Fan, Y. Chen, J. E. Huang, K. Xie, J. Zhang, C. P. O’Brien, F. Li*, E. H. Sargent, D. Sinton*, Conversion of CO₂ to multicarbon products in strong acid by controlling the catalyst microenvironment, **Nat. Synth.**, 2023, 2, 403-412.
** Highlighted at over 100 media outlets including Uni Sydney News & Opinions, The Canberra Times, The West Australian, Yahoo News, AAAS EurekAlert!, Phys.org, Technology Networks, Lab Manager, etc.
** Highlighted by Nature Synthesis News & Views: “Engineering the catalyst microenvironment”.
10. H. Sun, R. Tang*, X. Zhang, S. Zhang, W. Yang, L. Wang, W. Liang, F. Li, R. Zheng, J. Huang*, Interfacial energy band engineered CsPbBr₃/NiFe-LDH heterostructure catalysts with tunable visible light driven photocatalytic CO₂ reduction capability, **Catal. Sci. Technol.**, 2023, 13, 1154-1163.
11. M. Luo[†], A. Ozden[†], Z. Wang[†], F. Li[†], J. E. Huang[†], S.-F. Hung, Y. Wang, J. Li, D.-H. Nam, Y. C. Li, Y. Xu, R. Lu, S. Zhang, Y. Lum, Y. Ren, L. Fan, F. Wang, H. Li, D. Appadoo, C.-T. Dinh, Y. Liu, B. Chen, J. Wicks, H. Chen, D. Sinton*, E. H. Sargent*, Coordination polymer electrocatalysts enable efficient CO-to-acetate conversion, **Adv. Mater.**, 2023, 35, 2209567.
12. R. Chen[†], H. Ma[†], X. Ma, T. Ai, Y. Chai, H. Zhang, F. Li, X. Wang, C. Li, J. Ji, M. Xue*, Polymer crystallization regulation in liquid phase enables wearable full-featured thermoplastic-based smart Janus film, **Chem. Eng. J.**, 2023, 457, 141163.
13. T. Xia, Y. Yang, Q. Song, M. Luo, M. Xue, K. Ostrikov*, Y. Zhao*, F. Li*, In-situ characterisation for nanoscale structure-performance studies in electrocatalysis, **Nanoscale Horiz.**, 2023, 8, 146-157.

*** Invited contribution to the themed collections “New horizons in materials for energy conversion, optics and electronics”.*

*** Featured on front cover.*

14. Y. Zhang^{*}, J. Gui, D. Wang, J. Mao, C. Zhang, F. Li^{*}, Tandem effect of atomically isolated copper–nitrogen sites and copper clusters enhances CO₂ electroreduction to ethylene, **Nanoscale**, 2023, 15, 1092-1098.
***Invited contribution to the themed collection “Nanoscale Emerging Investigators”.*
15. A. Xu[†], S.-F. Hung[†], A. Cao[†], Z. Wang[†], N. Karmodak, J. E. Huang, Y. Yan, A. S. Rasouli, A. Ozden, F.-Y. Wu, Z.-Y. Lin, H.-J. Tsai, T.-J. Lee, I. Grigioni, F. Li, M. Luo, Y. Wang, X. Wang, J. Abed, Z. Wang, D.-H. Nam, Y. C. Li, A. H. Ip, D. Sinton, C. Dong^{*}, E. H. Sargent^{*}, Copper/alkaline earth metal oxide interfaces for electrochemical CO₂-to-alcohol conversion by selective hydrogenation, **Nat. Catal.**, 2022, 5, 1081-1088.
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16. C. Wang, X. Kong, J. Huang, Y. Yang, H. Zheng, H. Wang, S. Dai, S. Zhang, Y. Liang, Z. Geng^{*}, F. Li^{*}, J. Zeng^{*}, Promoting electrocatalytic CO₂ methanation using a molecular modifier on Cu surfaces, **J. Mater. Chem. A**, 2022, 10, 25725-25729.
17. D. Wang, J. Gui, B. Pan, M. Li, Y. Kuang, C. Zhang, J. Mao, Y. Loua, C. Pan, F. Li, Y. Li, Y. Wang^{*}, Y. Zhu^{*}, Y. Zhang^{*}, Multi-microenvironment synergistically promoting CO₂ electroreduction activity on porous Cu nanosheets, **Appl. Catal. B Environ.**, 2023, 322, 122119.
18. T. Zhang[†], R. Zhou^{†*}, S. Zhang[†], R. Zhou, J. Ding, F. Li, J. Hong, L. Dou, T. Shao^{*}, A. B. Murphy, K. Ostrikov, P. J. Cullen, Sustainable ammonia synthesis from nitrogen and water by one-step plasma catalysis, **Energy Environ. Mater.**, 2023, 6, e12344.
19. D.-H. Nam, O. Shekhah, A. Ozden, C. McCallum, F. Li, X. Wang, Y. Lum, T. Lee, J. Li, J. Wicks, A. Johnston, D. Sinton^{*}, M. Eddaoudi^{*}, E. H. Sargent^{*}, High-rate and selective CO₂ electrolysis to ethylene via metal-organic framework-augmented CO₂ availability, **Adv. Mater.**, 2022, 34, 2207088.
20. X. Jing, F. Li^{*}, Y. Wang^{*}, Assessing the economic potential of large-scale, carbonate-formation-free CO₂ electrolysis, **Catal. Sci. Technol.**, 2022, 12, 2912-2919.
21. S.-F. Hung[†], A. Xu[†], X. Wang[†], F. Li[†], S.-H. Hsu, Y. Li, J. Wicks, E. G. Cervantes, A. S. Rasouli, Y. C. Li, Mi. Luo, D.-H. Nam, N. Wang, T. Peng, Y. Yan, G. Lee, E. H. Sargent^{*}, A metal-supported single-atom catalytic site enables carbon dioxide hydrogenation, **Nat. Commun.**, 2022, 13, 819.
***‘Highly Cited Paper’ (Web of Science)*
22. X. Zang[†], Y. Jiang[†], Y. Chai, F. Li, J. Ji, M. Xue^{*}, Tunable metallic-like transport in polypyrrole, **Mater. Futures**, 2022, 1, 011001.
23. H. Zhang, Y. Yang, Y. Liang, J. Li, A. Zhang, H. Zheng, Z. Geng^{*}, F. Li^{*}, J. Zeng^{*}, Molecular stabilization of sub-nanometer Cu clusters for selective CO₂ electro-methanation, **ChemSusChem**, 2022, 15, e2021020.
***Very Important Paper (top 5%)*
***“Top 10 Most Downloaded Papers” among works published in ChemSusChem in 2021.*
24. T. Xia, Z. Wang, F. Li^{*}, Seeing is believing: in-situ visualising dynamic evolution in CO₂ electrolysis, **Curr. Opin. Electrochem.**, 2022, 31, 100846.
***Invited contribution to the “Electrochemical Materials and Engineering 2022” theme.*
25. Y. Liang[†], J. Zhao[†], H. Zhang[†], A. Zhang, S. Wang, J. Li, M. Shakouri, Q. Xiao, Y. Hu, Z. Liu, Z. Geng^{*}, F. Li^{*}, J. Zeng^{*}, Bias-adaptable CO₂-to-CO conversion via tuning the binding of competing intermediates, **Nano Lett.**, 2021, 21, 8924-8932.
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26. J. E. Huang[†], F. Li^{†*}, A. Ozden[†], A. S. Rasouli, F. G. de Arquer, S. Liu, S. Zhang, M. Luo, X. Wang, Y. Lum, Y. Xu, K. Bertens, R. K. Miao, C.-T. Dinh, D. Sinton^{*}, E. H. Sargent^{*}, CO₂ electrolysis to multi-carbon products in strong acid, **Science**, 2021, 372, 1074-1078.
***Highlighted at Uni Sydney News & Opinions, Uni Toronto News, AAAS EurekAlert!, Phys.org, Cosmos, ScienMag, ScienceDaily, MIRAGE, etc.*
***‘Highly Cited Paper’ (Web of Science)*
27. S. Zhang[†], C. Chen[†], K. Li, H. Yu, F. Li^{*}, Materials and system design for direct electrochemical CO₂ conversion in capture media, **J. Mater. Chem. A**, 2021, 9, 18785-18792.

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28. D. Wang[†], C. Liu[†], Y. Zhang, Y. Wang, Z. Wang, D. Ding, Y. Cui, X. Zhu, C. Pan, Y. Lou, F. Li*, Y. Zhu*, Y. Zhang*, CO₂ electroreduction to formate at a partial current density up to 590 mA mg⁻¹ via micrometer-scale lateral structuring of bismuth nanosheets, **Small**, 2021, 17, 2100602.
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29. T. N. Nguyen[†], J. Guo[†], A. Sachindran[†], F. Li*, A. Seifitokaldani*, C. T. Dinh*, Electrochemical CO₂ reduction to ethanol: from mechanistic understanding to catalyst design, **J. Mater. Chem. A**, 2021, 9, 12474-12494.
30. Y. Xu[†], F. Li[†], A. Xu, J. Edwards, S.-F. Hung, C. Gabardo, C. O'Brien, S. Liu, X. Wang, Y. Li, J. Wicks, R. K. Miao, Y. Liu, J. Li, J. E. Huang, J. Abed, Y. Wang, E. H. Sargent*, D. Sinton*, Low coordination number copper catalysts for electrochemical CO₂ methanation in a membrane electrode assembly, **Nat. Commun.**, 2021, 12, 2932.
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31. S. Zhang[†], X. Jing[†], Y. Wang*, F. Li*, Towards carbon-neutral methanol production from carbon dioxide electroreduction, **ChemNanoMat**, 2021, 7, 728-736.
***Invited contribution to the special collection on "Carbon Dioxide Conversion".*
32. J. Li[†], A. Ozden[†], M. Wan[†], Y. Hu, F. Li, Y. Wang, R. R. Zamani, D. Ren, Z. Wang, Y. Xu, D.-H. Nam, J. Wicks, B. Chen, X. Wang, M. Luo, M. Graetzel, F. Che*, E. H. Sargent*, D. Sinton*, Silica-copper catalyst interfaces enable C-C coupling toward ethylene electrosynthesis, **Nat. Commun.**, 2021, 12, 2808.
33. A. Ozden[†], Y. Wang[†], F. Li[†], M. Luo, J. Sisler, A. Thevenon, A. Rosas-Hernández, T. Burdyny, Y. Lum, H. Yadegari, T. Agapie, J. C. Peters, E. H. Sargent*, D. Sinton*, Cascade CO₂ electroreduction enables efficient carbonate-free production of ethylene, **Joule**, 2021, 5, 706-719.
***Highlighted at Science In Depth: "Hunt for renewable plastics clears a hurdle" (Science 371, 2021, 873).*
***'Highly Cited Paper' (Web of Science)*
34. Y. Yang, F. Li*, Reactor design for electrochemical CO₂ conversion towards large scale applications, **Curr. Opin. Green Sustain. Chem.**, 2021, 27, 100419.
***Invited contribution to Current Opinion in Green and Sustainable Chemistry special section "Young Ideas in Green and Sustainable Catalysis (2022)"*
35. G. Lee[†], Y. Li[†], J. Kim, T. Peng, D.-H. Nam, A. S. Rasouli, F. Li, M. Luo, A. Ip, Y.-C. Joo, E. H. Sargent*, Electrochemical upgrade of CO₂ from amine capture solution, **Nat. Energy**, 2021, 6, 46-53.
***Highlighted at Nature Energy News & Views: Breaking down hidden barriers.*
***Highlighted at UofT News, AAAS EurekAlert!, ScienMag, Bioengineer.org, AZoCleantech, TechXplore, etc.*
36. D.-H. Nam[†], O. Shekhah[†], G. Lee[†], A. Mallick, H. Jiang, F. Li, B. Chen, J. Wicks, M. Eddaoudi*, E. H. Sargent*, Intermediate binding control using metal-organic frameworks enhances electrochemical CO₂ reduction, **J. Am. Chem. Soc.**, 2020, 142, 21513-21521.
37. Y. Li[†], A. Xu[†], Y. Lum[†], X. Wang, S.-F. Hung, B. Chen, Z. Wang, Y. Xu, F. Li, J. Abed, J. E. Huang, A. S. Rasouli, J. Wicks, L. K. Sagar, T. Peng, A. H. Ip, D. Sinton, H. Jiang, C. Li*, E. H. Sargent*, Promoting CO₂ methanation via ligand-stabilized metal oxide clusters as hydrogen-donating motifs, **Nat. Commun.**, 2020, 11, 6190.
38. A. S. Rasouli[†], X. Wang[†], J. Wicks, G. Lee, T. Peng, F. Li, C. McCallum, C.-T. Dinh, A. H. Ip, D. Sinton, E. H. Sargent*, CO₂ electroreduction to methane at production rates exceeding 100 mA/cm², **ACS Sustainable Chem. Eng.**, 2020, 8, 14668-14673.
39. A. Ozden[†], F. Li[†], F. P. G. de Arquer, A. Rosas-Hernández, A. Thevenon, Y. Wang, S.-F. Hung, X. Wang, B. Chen, J. Li, J. Wicks, M. Luo, Z. Wang, T. Agapie*, J. C. Peters*, E. H. Sargent*, D. Sinton*, High-rate and efficient ethylene electrosynthesis using a catalyst/promoter/transport layer, **ACS Energy Lett.**, 2020, 5, 2811-2818.
40. J. Li[†], A. Xu[†], F. Li, Z. Wang, C. Zou, C. M. Gabardo, Y. Wang, A. Ozden, Y. Xu, D. -H. Nam, Y. Lum, J. Wicks, B. Chen, Z. Wang, J. Chen, Y. Wen, T. Zhuang, M. Luo, X. Du, T. -K. Sham, B. Zhang, E. H. Sargent*, D. Sinton*, Enhanced multi-carbon alcohol electroproduction from CO via modulated hydrogen adsorption, **Nat. Commun.**, 2020, 11, 3685.
41. W. R. Leow[†], Y. Lum[†], A. Ozden, Y. Wang, D. -H. Nam, B. Chen, J. Wicks, T. Zhuang, F. Li, D. Sinton, E. H. Sargent*, Chloride-mediated selective electrosynthesis of ethylene and propylene oxides at high current density, **Science**, 2020, 368, 1228-1233.
***Perspective at Science: "Electrification of the chemical industry".*
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42. X. Wang[†], Z. Wang[†], F. P. G. Arquer, C. -T. Dinh, A. Ozden, Y. C. Li, D. -H. Nam, J. Li, Y. -S. Liu, J. Wicks, Z. Chen, M. Chi, B. Chen, Y. Wang, J. Tam, J. Howe, A. Proppe, P. Todorovic, F. Li, T. Zhuang, C. M. Gabardo, A. Krimani, C. McCallum, Y. Lum, M. Luo, Y. Min, A. Xu, C. O'Brien, B. Stephen, B. Sun, A. H. Ip, L. Richter, S. Kelley, D. Sinton, E. H. Sargent*, Efficient electrically-powered CO₂-to-ethanol via suppression of deoxygenation, **Nat. Energy**, 2020, 5, 478-486.
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 ***'Highly Cited Paper' (Web of Science)
44. D. -H. Nam[†], P. D. Luna[†], A. Rosas-Hernández, A. Thevenon, F. Li, T. Agapie, J. C. Peters, O. Shekhah, M. Eddaoudi, E. H. Sargent*, Molecular enhancement of heterogeneous CO₂ reduction, **Nat. Mater.**, 2020, 19, 266-276.
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45. F. Li[†], Y. C. Li[†], Z. Wang[†], J. Li, D-H Nam, Y. Lum, M. Luo, X. Wang, A. Ozden, S.-F. Hung, B. Chen, Y. Wang, J. Wicks, Y. Xu, Y. Li, C. M. Gabardo, C.-T. Dinh, Y. Wang, T.-T. Zhuang, D. Sinton, E. H. Sargent*, Cooperative CO₂-to-ethanol conversion via enriched intermediates at molecule-metal catalyst interfaces, **Nat. Catal.**, 2020, 3, 75-82.
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46. X. Wang, A. Xu, F. Li, S.-F. Hung, D.-H. Nam, C. M. Gabardo, Z. Wang, Y. Xu, A. Ozden, A. S. Rasouli, A. H. Ip, D. Sinton, E. H. Sargent*, Efficient methane electrocatalysis enabled by tuning local CO₂ availability, **J. Am. Chem. Soc.**, 2020, 142, 3525-3531.
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47. Y. Wang[†], Z. Wang[†], C. -T. Dinh[†], J. Li[†], A. Ozden, M. G. Kibria, A. Seifitokaldani, C. -S. Tan, C. M. Gabardo, M. Luo, H. Zhou, F. Li, Y. Lum, C. McCallum, Y. Xu, M. Liu, A. Proppe, A. Johnston, P. Todorovic, T. -T. Zhuang, D. Sinton, S. O. Kelley, E. H. Sargent*, Catalyst synthesis under CO₂ electroreduction favors faceting and promotes renewable fuels electrocatalysis, **Nat. Catal.**, 2020, 3, 98-106.
 ***'Highly Cited Paper' (Web of Science)
48. F. Li[†], A. Thevenon[†], A. Rosas-Hernández[†], Z. Wang[†], Y. Li[†], C. M. Gabardo, A. Ozden, C. -T. Dinh, J. Li, Y. Wang, J. P. Edwards, Y. Xu, C. McCallum, L. Tao, Z. -Q. Liang, M. Luo, X. Wang, H. Li, C. P. O'Brien, C. -S. Tan, D. -H. Nam, R. Quintero-Bermudez, T. -T. Zhuang, Y. C. Li, Z. Han, R. D. Britt, D. Sinton, J. C. Peters*, T. Agapie*, E. H. Sargent*, Molecular tuning of CO₂-to-ethylene conversion, **Nature**, 2020, 577, 509-513.
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50. Y. Zhang[†], L. Li[†], S. -X. Guo, X. Zhang, F. Li, A. Bond, J. Zhang*, Two-dimensional electrocatalysts for efficient reduction of carbon dioxide, **ChemSusChem**, 2020, 13, 59-77.
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51. F. P. G. Arquer[†], C. -T. Dinh[†], A. Ozden[†], J. Wicks[†], C. McCallum, A. R. Kirmani, D. -H. Nam, C. M. Gabardo, A. Seifitokaldani, X. Wang, Y. C. Li, F. Li, J. Edwards, L. J. Richter, S. J. Thorpe, D. Sinton*, E. H. Sargent*, CO₂ electrolysis to multicarbon products at activities greater than 1 A cm⁻², **Science**, 2020, 367, 661-666.
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52. M. Luo[†], Y. C. Li[†], Z. Wang[†], J. Li, F. Li, Y. Lum, D. -H. Nam, B. Chen, J. Wicks, A. Xu, T. Zhuang, W. R. Leow, X. Wang, C. -T. Dinh, Y. Wang, Y. Wang, D. Sinton, E. H. Sargent*, Hydroxide promotes carbon dioxide electroreduction to ethanol on copper via tuning of adsorbed hydrogen, **Nat. Commun.**, 2019, 10, 5814.
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53. X. Wang[†], Z. Wang[†], T. -T. Zhuang, C. -T. Dinh, J. Li, D. -H. Nam, F. Li, C. -W. Huang, C. -S. Tan, Z. Chen, M. Chi, C. M. Gabardo, A. Seifitokaldani, P. Todorović, A. Proppe, Y. Pang, A. R. Kirmani, Y. Wang, A. H. Ip, L. J. Richter, B. Scheffel, A. Xu, S. -C. Lo, S. Kelley, D. Sinton, E. H. Sargent*, Efficient upgrading of CO to C₃ fuel using asymmetric C-C coupling active sites, **Nat. Commun.**, 2019, 10, 5186.
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54. J. Li[†], Z. Wang[†], C. McCallum[†], Y. Xu, F. Li, Y. Wang, C. Gabardo, C. -T. Dinh, T. -T. Zhuang, L. Wang, J. Y. Howe, Y. Ren, E. H. Sargent*, D. Sinton*, Constraining CO coverage on copper promotes high-efficiency ethylene electroproduction, **Nat. Catal.**, 2019, 2, 1124-1131.
55. T. Zhuang[†], D. -H. Nam[†], Z. Wang[†], H. -H. Li, C. Gabardo, Y. Li, Z. -Q. Liang, J. Li, X. -J. Liu, B. Chen, W. R. Leow, R. Wu, X. Wang, F. Li, Y. Lum, J. Wicks, C. O'Brien, T. Peng, A. Ip, T. -K. Sham, S. -H. Yu, D. Sinton, E. H. Sargent*, Dopant-tuned stabilization of intermediates promotes electrosynthesis of valuable C₃ products, **Nat. Commun.**, 2019, 10, 4807.
56. J. Li[†], S. Guo[†], F. Li, F. Li, X. Zhang, J. Ma*, D. R. Macfarlane, A. M. Bond, J. Zhang*, Electrohydrogenation of carbon dioxide using a ternary Pd/Cu₂O-Cu catalyst, **ChemSusChem**, 2019, 12, 4471-4479.
57. X. Zhang, Y. Zhang, F. Li, C. D. Easton, A. M. Bond, J. Zhang*, Oxomolybdate anchored on copper for electrocatalytic hydrogen production over the entire pH range, **Appl. Catal. B Environ.**, 2019, 249, 227-234.
58. Y. C. Li[†], Z. Wang[†], T. Yuan, D. -H. Nam, M. Luo, J. Wicks, B. Chen, J. Li, F. Li, F. P. G. Arquer, Y. Wang, C. -T. Dinh, O. Voznyy, D. Sinton, E. H. Sargent*, Binding site diversity promotes CO₂ electroreduction to ethanol, **J. Am. Chem. Soc.**, 2019, 141, 8584-8591.
 **Among the most highly cited publications in JACS for the period 2018-2019.
 **"Highly Cited Paper" (Web of Science)
59. Y. Pang[†], J. Li[†], C. -S. Tan, P. -L. Hsieh, T. -T. Zhuang, Z. Liang, C. Zou, X. Wang, P. D. Luna, J. P. Edwards, Y. Xu, F. Li, C. -T. Dinh, M. Zhong, L. -J. Chen, E. H. Sargent*, D. Sinton*, Efficient electrocatalytic conversion of carbon monoxide to propanol using fragmented copper, **Nat. Catal.**, 2019, 2, 251-258.
 **"Highly Cited Paper" (Web of Science)
60. T. -T. Zhuang[†], Y. Pang[†], Z. -Q. Liang, Y. Li, C. -S. Tan, H. Yuan, J. Li, C. -T. Dinh, P. D. Luna, P. -L. Hsieh, T. Burdyny, H. -H. Li, M. Liu, Y. Wang, F. Li, A. Proppe, A. Johnston, Z. -Y. Wu, Y. -R. Zheng, E. Bladt, A. Ip, H. Tan, L. -J. Chen, S. Bals, J. Hofkens, S. -H. Yu, S. O. Kelley, D. Sinton*, E. H. Sargent*, Copper nanocavities confine intermediates for efficient electrosynthesis of C₃ alcohol fuels from carbon monoxide, **Nat. Catal.**, 2018, 1, 946-951.
 **Featured as cover.
 **Highlighted at Nature Catalysis News & Views: "Geometry aids green carbon electrochemistry".
 **"Highly Cited Paper" (Web of Science)
61. J. Li[†], F. Che[†], Y. Pang[†], C. Zou[†], J. Howe, T. Burdyny, J. P. Edwards, Y. Wang, F. Li, P. D. Luna, C. -T. Dinh, T. Zhuang, M. I. Saidaminov, S. Cheng, T. Wu, Z. Finprock, L. Ma, Z. Xie, Y. Liu, G. Botton, X. Du, J. Guo, T. -K. Sham, E. H. Sargent*, D. Sinton*, Copper adparticle enabled selective electrosynthesis of n-propanol, **Nat. Commun.**, 2018, 9, 4614.
62. Z. -Q. Liang[†], T. -T. Zhuang[†], A. Seifitokaldani[†], J. Li, C. -W. Huang, C. -S. Tan, Y. Li, P. D. Luna, C. T. Dinh, Y. Hu, Q. Xiao, P. -L. Hsieh, Y. Wang, F. Li, R. Quintero-Bermudez, Y. Zhou, P. Chen, Y. Pang, S. -C. Lo, L. -J. Chen, H. Tan, Z. Xu, S. Zhao, D. Sinton, E. H. Sargent*, Copper-on-nitride enhances the stable electrosynthesis of multi-carbon products from CO₂, **Nat. Commun.**, 2018, 9, 3828.
 **"Highly Cited Paper" (Web of Science)
63. Y. Zhang, X. Zhang, Y. Ling, F. Li, A. Bond, J. Zhang*, Controllable synthesis of few-layer bismuth subcarbonate by electrochemical exfoliation for enhanced CO₂ reduction performance, **Angew. Chem. Int. Ed.**, 2018, 57, 13283-13287.
64. F. Li, J. Li, F. Li, L. Gao, X. Long, Y. Hu, C. Wang, S. Wei, J. Jin, J. Ma*, Facile regrowth of Mg-Fe₂O₃/P-Fe₂O₃ homojunction photoelectrode for efficient solar water oxidation, **J. Mater. Chem. A**, 2018, 6, 13412-13418.

65. F. Li, D. R. MacFarlane*, J. Zhang*, Recent advances in nanoengineering of electrocatalysts for CO₂ reduction, **Nanoscale**, 2018,10, 6235-6260.
 **'Highly Cited Paper' (Web of Science)
 **Featured in the themed collection "Nanoscale Most Popular Articles, 2018"
66. X. Zhang, F. Li, Y. Zhang, A. M. Bond, J. Zhang*, Stannate derived bimetallic nanoparticles for electrocatalytic CO₂ reduction, **J. Mater. Chem. A**, 2018, 6, 7851-7858.
67. Y. Zhang, F. Li, X. Zhang, T. Williams, C. Easton, A. M. Bond, J. Zhang*, Electrochemical reduction of CO₂ on defect-rich Bi derived from Bi₂S₃ with enhanced formate selectivity, **J. Mater. Chem. A**, 2018, 6, 4714-4720.
68. S. Guo, F. Li, D. R. MacFarlane, J. Zhang*, Polyoxometalate promoted electrocatalytic CO₂ reduction at nanostructured silver in dimethylformamide, **ACS Appl. Mater. Interfaces**, 2018, 10, 12690-12697.
69. C. Sun, F. Li, H. An, Z. Li, A. Bond, J. Zhang*, Facile electrochemical co-deposition of metal (Cu, Pd, Pt, Rh) nanoparticles on reduced graphene oxide for electrocatalytic reduction of nitrate/nitrite. **Electrochim. Acta**, 2018, 269, 733-741.
70. F. Li, M. Xue, X. Zhang, L. Chen, G. P. Knowles, D. R. MacFarlane*, J. Zhang*, Advanced composite two-dimensional energy materials by simultaneous anodic and cathodic exfoliation, **Adv. Energy Mater.**, 2018, 8, 1702794.
71. X. Zhang, Y. Zhang, F. Li, C. D. Easton, A. M. Bond, J. Zhang*, Ultra-small Cu nanoparticles embedded in N-doped carbon arrays for electrocatalytic CO₂ reduction reaction in dimethylformamide, **Nano Res.**, 2018, 11, 3678-3690.
72. F. Li, M. Xue, J. Li, X. Ma, L. Chen, X. Zhang, D. R. MacFarlane*, J. Zhang*, Unlocking the electrocatalytic activity of antimony for CO₂ reduction by two-dimensional engineering of the bulk material, **Angew. Chem. Int. Ed.**, 2017, 56, 14718-14722.
 **Highlighted at Chemistry in Australia, X-Mol.com
73. Y. Zhang, L. Chen, F. Li, C. Easton, J. Li, A. Bond*, J. Zhang*, Direct detection of electron transfer reactions underpinning the tin catalyzed electrochemical reduction of CO₂ using Fourier transformed ac voltammetry, **ACS Catal.**, 2017, 7, 4846-4853.
74. L. Chen, F. Li, C. L. Bentley, M. Horne, A. M. Bond, J. Zhang*, Electrocatalytic reduction of CO₂ with an oxide derived lead nano-coralline electrode in a distillable ionic liquid, **ChemElectroChem**, 2017, 4, 1402-1410.
75. F. Li, M. Xue, G. P. Knowles, L. Chen, D. R. MacFarlane*, J. Zhang*, Nitrogen doped carbon derived from biomass for electrocatalytic reduction of CO₂ to CO, **Electrochim. Acta**, 2017, 245, 561-568.
76. X. Ma, F. Li, Z. Xie, M. Xue, Z. Zheng, X. Zhang*, Size-tunable, highly sensitive microelectrode arrays enabled by polymer pen lithography, **Soft Matter**, 2017, 13, 3685-3689.
77. F. Li, L. Chen, G. P. Knowles, D. R. MacFarlane*, J. Zhang*, Hierarchical mesoporous SnO₂ nanosheets on carbon cloth: a robust and flexible electrocatalyst for CO₂ reduction with high efficiency and selectivity, **Angew. Chem. Int. Ed.**, 2017, 56, 505-509.
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78. L. Chen, F. Li, Y. Zhang, C. L. Bentley, M. Horne, A. M. Bond, J. Zhang*, Electrochemical reduction of carbon dioxide in a monoethanolamine capture medium, **ChemSumChem**, 2017, 10, 4109-4118.
79. C. Bentley*, M. Kang, F. Maddar, F. Li, M. Walker, J. Zhang, P. Unwin*, Electrochemical maps and movies of the hydrogen evolution reaction on natural crystals of molybdenite: basal vs. edge plane activity, **Chem. Sci.**, 2017, 8, 6583-6593.
80. F. Li, L. Chen, M. Xue, T. Williams, Y. Zhang, D. R. MacFarlane*, J. Zhang*, Towards a better Sn: efficient electrocatalytic reduction of CO₂ to formate by Sn/SnS₂ derived from SnS₂ nanosheets, **Nano Energy**, 2017, 31, 270-277.
81. D. Cooray, S. Sandanayake, F. Li, S. J. Langford, A. M. Bond, J. Zhang*, Efficient enzymatic oxidation of glucose mediated by ferrocene covalently attached to polyethylenimine stabilized gold nanoparticles, **Electroanalysis**, 2016, 28, 2728-2736.
82. F. Li, S. Zhao, L. Chen, A. Khan, D. R. MacFarlane*, J. Zhang*, Polyethylenimine promoted electrocatalytic reduction of CO₂ to CO in aqueous medium by graphene-supported amorphous molybdenum sulphide, **Energy Environ. Sci.**, 2016, 9, 216-223.

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83. M. Xue*, F. Li, D. Chen, Z. Yang, X. Wang, J. Ji, High-oriented polypyrrole nanotubes for next-generation gas sensor, **Adv. Mater.**, 2016, 28, 8265-8270.

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84. L. Chen, S. Guo, F. Li, C. Bentley, M. Horne, A. M. Bond, J. Zhang*, Electrochemical reduction of CO₂ at metal electrodes in the distillable ionic liquid dimethylammonium dimethylcarbamate, **ChemSusChem**, 2016, 9, 1271-1278.

85. F. Li, J. Chen, X. Wang, M. Xue*, G. F. Chen, Stretchable supercapacitor with adjustable volumetric capacitance based on 3D interdigital electrodes, **Adv. Funct. Mater.**, 2015, 25, 4601-4606.

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86. X. Ma, M. Xue*, F. Li, J. Chen, D. Chen, X. Wang, F. Pan, G. F. Chen, Gradual-order enhanced stability: a frozen section of electrospun nanofibers for energy storage, **Nanoscale**, 2015, 7, 8715-8719.

87. H. Lei†, A. Han†, F. Li, M. Zhang, Y. Han, P. Du*, W. Lai*, R. Cao*, Electrochemical, spectroscopic and theoretical studies of a simple bifunctional cobalt corrole catalyst for oxygen evolution and hydrogen production, **Phys. Chem. Chem. Phys.**, 2014, 16, 1883-1893.

88. J. He, X. Ma, Y. Zhu, F. Li, X. Tang, X. Zhang*, M. Zhang*, Facile fabrication of regular Au microband electrode arrays for voltammetric detection down to submicromolar level by hydrogel etching, **Electrochem. Commun.**, 2013, 30, 67-70.

89. X. Tang, D. Zhao, J. He, F. Li, J. Peng, M. Zhang*, Quenching of the electrochemiluminescence of tris (2,2'-bipyridine) ruthenium(II)-Tri-n-propylamine by pristine carbon nanotube and its application to quantitative detection of DNA, **Anal. Chem.**, 2013, 85, 1711-1718.

90. M. Xue*, F. Li, Y. Wang, X. Cai, F. Pan, J. Chen*, Ultralow-limit gas detection in nano-dumbbell polymer sensor via electrospinning, **Nanoscale**, 2013, 5, 1803-1805.

91. M. Xue, T. Cao*, D. Wang, Y. Wu, H. Yang, X. Dong, J. He, F. Li, G. F. Chen*, Superconductivity above 30 K in alkali-metal-doped hydrocarbon, **Sci. Rep.**, 2012, 2, 389-392.

92. M. Xue, F. Li, J. Zhu, H. Song, M. Zhang, T. Cao*, Structure-based enhanced capacitance: in situ growth of highly ordered polyaniline nanorods on reduced graphene oxide patterns, **Adv. Funct. Mater.**, 2012, 22, 1284-1290.

93. M. Xue†, F. Li†, T. Cao*, Fabrication of ultra-fine nanostructures using edge transfer printing, **Nanoscale**, 2012, 4, 1939-1947.

94. F. Li, M. Xue, X. Ma, T. Cao*, M. Zhang*, Facile patterning of reduced graphene oxide film into microelectrode array for highly sensitive sensing, **Anal. Chem.**, 2011, 83, 6426-6430.

• **Book chapters**

95. F. Li, J. Zhang*, Electrocatalytic Reduction of CO₂ in Ionic Liquid-based Electrolytes in *Encyclopedia of Ionic Liquids*, Springer, Singapore, 2019.

96. F. Li, M. Xue*, Two-Dimensional Transition Metal Dichalcogenides for Electrocatalytic Energy Conversion Applications in *Two-dimensional Materials – Synthesis, Characterization and Potential Applications*, IntechOpen, London, 2016.

PATENTS & INNOVATIONS

1. P. J. Cullen, T. Zhang, R. Zhou, F. Li, AMMONIA PRODUCTION. Application no. PCT WO/2024/011285 on 12/07/2023.

2. J. E. Huang, F. Li, A. Ozden, D. Sinton, E. H. Sargent, CO₂ ELECTROREDUCTION TO MULTI-CARBON PRODUCTS IN STRONG ACID. Publication no. WO/2022/184905 on 09/09/2022.

3. A. Ozden, Y. Wang, F. Li, D. Sinton, E. H. Sargent, CASCADE CO₂ ELECTROREDUCTION SYSTEM AND RELATED METHODS FOR ENHANCED PRODUCTION OF ETHYLENE. Publication no. WO/2022/148837 on 14/07/2022.

4. T. Agapie, A. R. Hernandez, F. Li, J. C. Peters, E. H. Sargent, A. Thevenon, STABILIZATION OF A CO-BOUND INTERMEDIATE VIA MOLECULAR TUNING PROMOTES CO₂-TO-ETHYLENE CONVERSION. Patent no. US 11,746,426, date of patent: 05/09/2023.

CONFERENCES & INVITED TALKS Frequently invited to attend domestic and international conferences and give 20+ invited talks and colloquia at various research institutions since 2020.

- 2024 Keynote speaker “Electrocatalytic CO₂ conversion”, International Conference on Advanced Materials for Energy, Environment, and Health (ICAMEEH), Adelaide, Australia, September.
- 2023 Invited speaker “Micro-environment tuning for CO₂ electrocatalysis”, 4th Asia-Pacific Conference on Energy Storage and Conversion (APEnergy2023), Xiamen, China, November.
- 2023 Invited talk “Micro-environment tuning for CO₂ electrocatalysis”, Peking University, Tsinghua University, Renmin University of China, Fudan University, Shanghai Jiaotong University, University of Science and Technology of China (USTC), University of Electronic Science and Technology of China, Soochow University, China, September.
- 2023 Keynote speaker “Electricity driven chemical/fuel production”, Innovate UK Global Business Innovation Program (Hydrogen-Australia), Sydney, Australia, August.
- 2023 Invited speaker “Micro-environment tuning for CO₂ electrocatalysis”, International Conference on Energy and Environmental Materials, Gold Coast, Australia, August.
- 2023 Invited speaker “Micro-environment tuning for CO₂ electrocatalysis”, International Conference on Materials Innovation, Brisbane, Australia, August.
- 2023 Keynote speaker “Green hydrogen research in action”, Australian Singapore International Hydrogen R&D Delegation, Singapore, June.
- 2023 Invited speaker “Micro-environment tuning for CO₂ electrocatalysis”, International Conference on Nano Bio Intelligence, Sydney, Australia, June.
- 2022 Keynote speaker and panel discussion “Nanotechnology for a net-zero future: addressing grand challenges at nanoscale”, 1st Net Zero Initiative Conference, Sydney, Australia, November.
- 2022 Invited speaker “Nanocatalysts for CO₂ electrolysis”, 4th International Conference on Emerging Advanced Nanomaterials (ICEAN 2022), Newcastle, Australia, October.
- 2022 Invited speaker “Inorganic/organic hybrid materials for electrochemical CO₂ conversion”, International Young Scientists Salon on Photo & Electro Catalytic CO₂ Reduction (virtual), Tianjin, China, September.
- 2022 Invited talk “Electrochemical CO₂ Utilisation – Catalysts, Device, and System” Adelaide University, Adelaide, Australia, July.
- 2022 Invited talk “Electrochemical CO₂ Utilisation – Catalysts, Device, and System” UTS, Sydney, Australia, July.
- 2022 Session chair and invited speaker “In situ XAS study of copper coordination polymer for electrocatalysis”, 18th International Conference on X-Ray Absorption Fine Structure (XAFS) 2022, Sydney, Australia, July.
- 2022 Invited speaker “Stable Cu coordination polymer for efficient CO₂ electroreduction”, RACI 2022 National Congress, Brisbane, Australia, July.
- 2022 Invited speaker “Cu catalysts for electrochemical CO₂ conversion”, 2022 International Symposium on Clean Energy Materials, Gold Coast, Australia, June.
- 2022 Invited talk “Electrochemical CO₂ Utilisation – Catalysts, Device, and System” Monash University, Melbourne, Australia, May.
- 2022 Organiser and chair of the “1st Sydney Nano Grand Challenge Solar Fuels Symposium”, University of Sydney, April.
- 2021 Invited talk “Molecular tuning of electrochemical CO₂ reduction”, Pacifichem 2021 (virtual), Hawaii, US, December.
- 2021 Invited talk “Electrochemical CO₂ Utilisation – Catalysts, Device, and System” Materials Research Society-Taiwan International Conference (virtual), Taiwan, November.
- 2021 Keynote speaker “Interfacial modulation for electrochemical CO₂ reduction”, International Symposium on Advanced Materials and Catalysis for Energy and Environmental Applications, Jiannan University – University of Central Florida (virtual), July.
- 2021 Invited talk “Electrochemical carbon dioxide conversion – catalysts, devices, systems”, The University of Queensland, Brisbane, Australia, July & March.
- 2021 Moderator of “Workshop on electrochemical CO₂ conversion to chemicals”, The University of Queensland, Brisbane, Australia, June.
- 2020 Invited talk “Electrochemical carbon dioxide utilisation”, CSIRO, Newcastle, Australia, November.
- 2020 Invited talk “Molecular tuning of electrochemical CO₂ reduction”, The Martlets Society, online, October.
- 2020 Keynote speaker on Molecules and Devices Symposium, “Electrochemical CO₂ conversion”, online, September.

- 2020 Invited talk “Molecular tuning of electrochemical CO₂ reduction”, Scientific Cloud, online, March.
- 2020 Invited talk “Molecular tuning of electrochemical CO₂ reduction”, UNSW, Sydney, Australia, February.
- 2020 Invited talk “Molecular tuning of electrochemical CO₂ reduction”, École polytechnique fédérale de Lausanne (EPFL), Lausanne, Switzerland, January.
- 2019 Invited talk “Molecular tuning of electrochemical CO₂ reduction”, Renmin University of China, Huazhong University of Science and Technology, Shaanxi Normal University, China, December.
- 2019 Invited talk “Electrocatalytic CO₂ reduction – catalyst, mechanism and system”, University of Science and Technology of China, Hefei, China, April.
- 2016 Invited talk “2D materials for electrocatalytic CO₂ reduction”, Renmin University of China, Beijing, China, September.
- 2016 Invited talk “2D metal sulphide materials for electrocatalytic reduction of CO₂ in aqueous medium”, Leiden University, Leiden, the Netherlands, August.
- 2016 Royal Australian Chemical Institute Centenary Congress, “Two-dimensional electrocatalysts for CO₂ reduction”, Melbourne, Australia, July.
- 2016 ARC Centre of Excellence for Electromaterials Science Full Centre Meeting, “Artificial photosynthesis – with and without wires”, Canberra, Australia, September.
- 2016 67th Annual Meeting of the International Society of Electrochemistry, “Graphene supported 2D metal sulphide materials for electrocatalytic reduction of CO₂”, The Hague, the Netherlands, August.
- 2016 11th Annual International Electromaterials Science Symposium, “Polyethylenimine promoted electrocatalytic reduction of CO₂ to CO in aqueous media by graphene-supported molybdenum sulphide”, Melbourne, Australia, February.
- 2016 11th Annual International Electromaterials Science Symposium, “Graphene Supported Materials for Electrocatalytic CO₂ Reduction”, Melbourne, Australia, February.

SELECTED GRANTS

- 2025–2029 ARC Future Fellowship “Electrocatalytic green ammonia synthesis using reactive dinitrogen” (FT240100376, \$923,048, solo CI)
- 2024–2029 Australian Renewable Energy Agency (ARENA) Transformative Research Accelerating Commercialisation Program “Advanced Manufacturing Alkaline Electrolyser Cell-Stacks for Affordable and Scalable Green Hydrogen Production” (2023/TRAC734, \$2,243,513, 2nd CI)
- 2023–2024 University of Sydney Research Accelerator (SOAR) Prize (\$100,000, solo CI)
- 2023–2026 Minerals Research Institute of Western Australia (MRIWA) “Advanced electrometallurgy for improved recovery of green metals” (M10477, \$378,785, 2nd CI)
- 2023–2030 ARC Centre of Excellence for Green Electrochemical Transformation for Carbon Dioxide (CE230100017, \$34,956,464, 7th/19 CI & flagship program lead)
- 2023 ARC Linkage Infrastructure, Equipment and Facilities (LIEF) “Comprehensive and versatile in-house X-ray absorption spectroscopy facility” (LE230100052, \$549,859, 2nd/9 CI)
- 2023 ARC Linkage Infrastructure, Equipment and Facilities (LIEF) “Integrated high-throughput material synthesis and characterisation system” (LE230100070, \$740,700, 6th/12 CI)
- 2022–2023 Australian Institute of Nuclear Science and Engineering (AINSE) Early Career Researcher Grant (\$9,000, solo CI)
- 2022 Net Zero Initiative seed fund (\$37,500 + \$37,500 industry match, CI)
- 2022–2024 ARC Discovery Project “Plasma-catalytic bubbles for sustainable ammonia” (DP220102246, \$462,539, 2nd CI)
- 2022–2023 Sydney Nano Grand Challenge “Solar Fuels” (\$150,000, lead CI)
- 2022 Faculty of Engineering Major Equipment Scheme (\$80,000, lead CI)
- 2022–2024 CSIRO Collaborative Research Project (\$30,000, solo CI)
- 2021–2022 Australian Synchrotron Merit Beamtime (eight times totalling \$852,384 in kind, lead CI)
- 2020–2023 ARC Discovery Early Career Researcher Award “Developing sustainable liquid fuels from carbon dioxide conversion” (DE200100477, \$420,770, solo CI)

MEMBERSHIP FOR PROFESSIONAL SOCIETIES

- 2023–now American Association for the Advancement of Science (AAAS)
- 2020–now Royal Australian Chemical Institute (RACI)
- 2020–now Royal Society of Chemistry (RSC)

2020-now American Chemical Society (ACS)

SERVICES FOR JOURNALS/ORGANISATIONS/CONFERENCES

2024– XAS/MEX Program Advisory Committee (PAC) member for ANSTO Australian Synchrotron
2024– ECR Editorial Board member for *eScience* (top10% journal in Materials Chemistry)
2024 Organising Committee member for the 2nd International Congress on Separation and Purification Technology (ISPT2024)
2023–2024 Guest editor for *Nano Energy* (Elsevier) on the special issue “Advances in Electrochemical CO₂ Conversion for Net-Zero Chemical Production”
2023– Research Program Committee member for the ARC Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide
2023– Advisory Committee member of the CANStore Energy Research Centre, Canada
2023 Organising Committee member for the International Conference on Nano Bio Intelligence
2023 Australian–Singapore Delegation of the International Hydrogen Research Collaboration Program, Department of Climate Change, Energy the Environment and Water (DCCEEW) and CSIRO
2023 Organising Committee member for the 23rd Australasian Electrochemistry Symposium
2022–2023 Judge for NSW Science Teachers Association (STANSW) Young Scientist Awards
2022–now Member for Sydney Analytical X-Ray User Group and Vibrational Spectroscopy Group
2021– Editorial Board for *Materials Futures* (IOP)
2021– Early Career Researcher Editorial Board for *Materials Today Energy* (Elsevier)

REVIEWER FOR FUNDING ORGANISATIONS

2020– Australian Research Council (DP, Linkage, Future Fellow, DECRA, Industry Fellowships)
2021– Australian Synchrotron
2023 Israel Science Foundation
2022 Belgian Research Foundation Flanders (FWO), for Odysseus Programme
2022 The Dutch Research Council (NWO)
2021 Swiss National Science Foundation

REVIEWER FOR JOURNALS (selected list, reviewing ~20 papers annually)

ACS Catalysis	ACS Energy Letters
Advanced Energy Materials	Advanced Functional Materials
Angewandte Chemie	Chemical Engineering Journal
Joule	Journal of Materials Chemistry A
Journal of the American Chemical Society	Nature
Nature Catalysis	Nature Chemical Engineering
Nature Energy	Nature Communications
Nano Letters	Science Advances

SERVICE AT USYD

2024–now School of Chemical and Biomolecular Engineering (CBE) Forth-Year Coordinator
2021–2023 Thesis coordinator for undergraduate thesis and coursework master’s capstone project
2020– Undergraduate thesis supervisor
2021– MIPPS supervisor
2021– CBE Research Executive Committee member

TEACHING

2024– Chemical Engineering Thermodynamics (CHNG2804, lecturer)
2023– Introduction to Sustainability (SUST1001, co-lecture with Science, Business, FASS, and DVC)
2023– Chemical Engineering Modelling and Analysis (CHNG2802, coordinator)
2021–2023 Nanotechnology in Chemical Engineering (CHNG5008, coordinator in 2023)
2020 Conservation of Mass and Energy (CHNG1103, 9103)

MENTORSHIP & SUPERVISION

- *Research Fellows & Postdoctoral Fellows*
Dr. Aoni Xu (2024–, Sydney Horizon Fellow) Dr. Xiao Yang (2024–, Postdoctoral Fellow)
Dr. Bo Ma (2024–, Visiting Scholar) Dr. Jiyuan Liu (2024–, Postdoctoral Fellow)

