CHUHONG LIN

Nanyang Technological University
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EDUCATION

Doctor of Philosophy in Physical and Theoretical Chemistry 2014-2017

Department of Chemistry, University of Oxford, United Kingdom

Supervisor: Prof. Richard Compton

Thesis: “Interfacial electrochemical kinetics”

Bachelor of Science 2010-2014

Department of Chemical Physics, University of Science and Technology of China, China

RESEARCH EXPERIENCE

Research Fellow 2022-present

School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University, Singapore

Supervisor: Assist. Prof. Tej. S. Choksi

Research topic: analyzing reaction kinetics and designing bimetallic nanocatalysts for methylcyclohexane dehydrogenation via machine learning and computational chemistry

Associate Research Fellow (Independent Investigator) 2018-2021

Hefei Institutes of Physical Science, Chinese Academy of Sciences, China

Research focus: development of electro-sensing interfaces detecting heavy metal pollutants via multiscale kinetic simulation

Postdoctoral Research Associate 2017-2018

Department of Chemistry, University of Oxford, United Kingdom

Supervisor: Prof. Richard Compton

Research topic: investigating single-nanoparticle electrochemistry via kinetics simulation and nano-impact technique

TEACHING AND SUPERVISING EXPERIENCE

Guest lecturer 2019-2020

Graduate course “Electrochemical Methods”, University of Science and Technology of China

Teaching the topics of “voltammetric methods” and “electrode reaction kinetics”

Graduate student supervisor 2018-2021

RESEARCH GRANT AND AWARD

Research Grant 2022-2025

National Natural Science Foundation of China (NFSC), No. 21802145, CNY 600,000, PI

Title: Kinetics investigation of the heavy metal detection via the electrochemical stripping analysis on nanomaterial modified electrodes

Research Grant 2019-2021

National Natural Science Foundation of China, No. 22174144, CNY 275,000, PI

Title: Kinetics investigation of the heavy metal detection via the electrochemical stripping analysis on nanomaterial modified electrodes

Scholarship 2018

China Scholarship Council

Chinese Government Award for Outstanding Self-financed Students Abroad

ACADEMIC SERVICE

Early Career Editorial Board 2024-present

Journal of Electrochemistry

Session co-chair 2023

American Institute of Chemical Engineers Annual Meeting, Orlando, USA

Reviewer of peer-review journals 2017-present

Peer-review for *J. Phys. Chem. Lett.*, *Curr. Opin. Electrochem.*, *Anal. Chem.*, *Electrochem. Comm.*, *Electrochim. Acta*, and *J. Electroanal. Chem.*

Graduate Student Recruitment and Conversion Committee 2020-2021

Hefei Institute of Physical Science, Chinese Academy of Sciences, China

Members of academic societies

International Society of Electrochemistry, Singapore Catalysis Society, American Institute of Chemical Engineers

RESEARCH SKILL

Mean-field kinetic modeling and Monte-Carlo simulation (Matlab, C++)

Molecule and material modelling (Density Functionals Theory computation)

Data science and machine learning

Electrochemical experiment and analysis

LANGUAGE

English (fluent), Chinese (native)

PATENT AND SOFTWARE LICENSE

1. A method of detecting heavy metal As(III) in natural waters, X. J. Huang, X. Cai, **C. Lin**, China, CN113820370A, Nov 2021
2. Software Copyright of HMI-EC simulator V1.0, **C. Lin**, China, No. 2020SR0973 010, Aug 2020.

CONFERENCE PRESENTATION (oral only)

1. "Designing Catalytic Nanoparticles for Methyl Cyclohexane Dehydrogenation via Machine Learning and Microkinetic Modelling", the 18th International Congress on Catalysis, Lyon, France, Jul 2024
2. "The Dehydrogenation of Methyl Cyclohexane on Pt Nanoclusters: Insights from a First Principles Microkinetic Model", American Institute of Chemical Engineers Annual Meeting, Orlando, USA, Nov 2023
3. "Kinetics Modelling for Nano-Electrocatalysis: Exploring the Impact of Mass Transport on Reactivity and Selectivity", the 74th Annual Meeting of the International Society of Electrochemistry, Lyon, France, Sept 2023
4. "Predicting the Adsorption Energies of Cyclic Hydrocarbons Adsorbed on Bimetallic Nanoclusters Using Machine Learning", Southeast Asia Catalysis Conference (SACC), Singapore, May 2023
5. "Metal Replacement Causing Interference in Detecting Multiple Heavy Metal Analytes: Kinetic Study on Cd(II) and Cu(II) Electroanalysis via Experiment and Simulation", the 17th International Symposium on Electroanalytical Chemistry, Changchun, China, Aug 2019
6. "Single Enzyme Detection via the Nano-Impact Technique", the 16th International Symposium on Electroanalytical Chemistry, Changchun, China, Aug 2017
7. "The Hydrogen Oxidation Reaction on Platinum Nanoparticles: Understanding the Kinetics of Electrocatalytic Reactions via 'Nano-Impacts'", Electrochem, Leicester, UK, Jul 2016

SELECTED PUBLICATIONS

A full publication list can be found in my Google Scholar page.

1. **C. Lin**, B. Lee, U. Anjum, A. Prabhu, R. Xu, T. Choksi*, Harnessing Physics-inspired Machine Learning to Design Nanocluster Catalysts for Dehydrogenating Liquid Organic Hydrogen Carriers (preprint), *ChemRxiv*, 2024, DOI: 10.26434/chemrxiv-2024-bj36p
2. Z. Liang, W. Xu, J. Li*, **C. Lin***, W. Zhang, W. Liu, X. H. Xia, Y. G. Zhou*, Unveiling the solvent effect in plasmon enhanced electrochemistry via the nanoparticle-impact technique, *Nano Letters*, 2023, 10871-10878
3. X. Cai, R. Z. Xia, J. J. Ye, C. C. Huang, Y. F. Yang, L. K. Zhang, B. Liang, M. Yang, **C. Lin***, P. H. Li*, X. J. Huang*, Practical strategy for Arsenic (III) electroanalysis without modifier in natural water: Triggered by iron group Ions in solution, *Analytical Chemistry*, 2023, 95, 8, 4104
4. R. Zhong, X. Wang, Q. Tao, J. Zhang, **C. Lin***, H. Wei*, Y. G. Zhou*, From ensemble electrochemistry to Nano-Impact electrochemistry: Altered reaction selectivity, *Angewandte Chemie International Edition*, 2022, 61, 2022072
5. **C. Lin**[1,*], J. J. Ye[1], X. J. Huang, Understanding the ensemble electrochemistry of random-walk nanoparticles: Improved reaction efficiency and mechanistic insights, *Chemical Engineering Journal*, 2021, 418, 129393

6. M. Yang, Y. X. Li, M. Jiang, P. H. Li, S. H. Chen, J. H. Liu, **C. Lin***, X. J. Huang*, W. Q. Liu*, Identifying Phase-Dependent Electrochemical Stripping Performance of FeOOH Nanorod: Evidence from Kinetic Simulation and Analyte–Material Interactions, *Small*, 2020, 16, 1906830

7. **C. Lin**[1,*], P. H. Li[1], M. Yang, J. J. Ye, X. J. Huang*, Metal replacement causing interference in stripping analysis of multiple heavy metal analytes: kinetic study on Cd (II) and Cu (II) electroanalysis via experiment and simulation, *Analytical Chemistry*, 2019, 91, 9978-9985

8. **C. Lin**, L. Sepunaru, E. Kätelhön, R. G. Compton*, Electrochemistry of single enzymes: fluctuations of catalase activities, *The Journal of Physical Chemistry Letters*, 2018, 9, 2814-2817

9. **C. Lin**, E. Kätelhön, L. Sepunaru, R. G. Compton*, Understanding single enzyme activity via the nano-impact technique, *Chemical Science*, 2017, 8, 6423-6432

10. X. Li[1], **C. Lin**[1], C. Batchelor-McAuley, E. Laborda, L. Shao, R. G. Compton*, New insights into fundamental electron transfer from single nanoparticle voltammetry, *The Journal of Physical Chemistry Letters*, 2016, 7, 1554-1558