

**CHUHONG LIN**

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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: measurement of single enzyme kinetics by the combination of kinetics simulation and nano-impact electrochemistry

**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

Ms. Xin Cai and Ms. Jia-Jia Ye have completed their master courses in 2021.

Co-supervision: Dr. Pei-Hua Li obtained her PhD thesis titled "Electrochemical Detection of As(III) Over Single-Atom Catalysts and the Study on Catalytic Mechanism" in 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.

**SELECTED PUBLICATION**

- 1) 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 Lett.*, 2023, 23, 10871.
- 2) 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, *Angew. Chem. Int. Ed.*, 2022, 61, 2022072.
- 3) **C. Lin**<sup>1,\*</sup>, J. J. Ye<sup>1</sup>, X. J. Huang, Understanding the ensemble electrochemistry of random-walk nanoparticles: Improved reaction efficiency and mechanistic insights, *Chem. Eng. J.*, 2021, 418, 129393M.
- 4) Yang, F. Xie, S. S. Li, **C. Lin\***, X. J. Huang\*, W. Q. Liu\*, Zero-valent iron nanomaterial Fe<sup>0</sup>@Fe<sub>2</sub>MnO<sub>4</sub> for ultrasensitive electroanalysis of As(III): Fe<sup>0</sup> influenced surficial redox potential, *Chem. Comm.*, 2021, 57, 1324
- 5) 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
- 6) **C. Lin**<sup>1,\*</sup>, P. H. Li<sup>1</sup>, 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, *Anal. Chem.*, 2019, 91, 9978
- 7) **C. Lin**, R. G. Compton\*, Understanding mass transport influenced electrocatalysis at the nanoscale via numerical simulation, *Curr. Opin. Electrochem.*, 2019, 14, 186
- 8) **C. Lin**, E. Kätelhön, L. Sepunaru, R. G. Compton\*, Understanding single enzyme activity via the nano-impact technique, *Chem. Sci.*, 2017, 8, 6423
- 9) **C. Lin**, R. G. Compton\*, Size effects in nanoparticle catalysis at nanoparticle modified electrodes: The interplay of diffusion and chemical reactions, *J. Phys. Chem. C*, 2017, 121, 2521
- 10) X. Li<sup>1</sup>, **C. Lin**<sup>1</sup>, C. Batchelor-McAuley, E. Laborda, L. Shao, R. G. Compton\*, New insights into fundamental electron transfer from single nanoparticle voltammetry, *J. Phys. Chem. Lett.*, 2016, 7, 1554

**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 17<sup>th</sup> International Symposium on Electroanalytical Chemistry, Changchun, China, Aug 2019
- 6) "Single Enzyme Detection via the Nano-Impact Technique", the 16<sup>th</sup> 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