Rong (Rocky) Ye

University of Michigan, Department of Chemical Engineering,
Bldg. 28, Rm. 1028E, 2800 Plymouth Road, Ann Arbor, MI 48109-2800
Email: rongye@umich.edu; Personal webpage: RockyYe.org

PROFESSIONAL APPOINTMENT

2022.10 – present	Postdoctoral research Fellow, University of Michigan Advisors: Profs. Suljo Linic, Eranda Nikolla, Bryan Goldsmith, and Nirala Singh
2018.03 – 2022.09	Postdoctoral Associate, Cornell University. Advisor: Prof. Peng Chen

EDUCATION

2012-2017	**University of California, Berkeley**: Ph.D., Physical Chemistry Advisor: Prof. Gabor A. Somorjai; Co-advisor: Prof. F. Dean Toste Thesis: Development of Molecular Catalysts to Bridge the Gap between Heterogeneous and Homogeneous Catalysts
2011-2012	**University of California, Los Angeles**: M.S., Inorganic Chemistry
2007-2011	**Sun Yat-Sen University**: B.E., Polymeric Material and Engineering Advisor: Prof. Xiao-Ming Chen

SELECTED HONORS & AWARDS

2018-2021	**Presidential Postdoctoral Fellowship**, Cornell University (Cornell Feature story)
2019	**Victor K. LaMer Award**, American Chemical Society (Link)
2018	**Chinese Government Award for Outstanding Self-financed Students Abroad**, China Scholarship Council
2017	**IPMI Student Award for Precious Metals Research**, International Precious Metals Institute
2017	**Student Mentoring and Research Teams (SMART) graduate mentor** at UC Berkeley (Link)
2017	**MRS Graduate Student Silver Award**, Materials Research Society
2015	**Teagle Foundation Award for Excellence in Enhancing Student Learning** at UC Berkeley Awarded essay: "Prompting Critical Thinking through Metacognition and Electronic Scheduling" (Link)
2015	**Teaching Effectiveness Award** at UC Berkeley Awarded essay: "Achieving Higher Efficiency in Chemistry Labs Using Electronic Scheduling" (Link)
2014	**Outstanding Graduate Student Instructor Award** at UC Berkeley

PEER-REVIEWED PUBLICATIONS (# indicates equal contribution)

1. **Ye, R.**; # Sun, X.; # Mao, X.; # Alfonso, F.A.; Baral, S.; Liu, C.; Coates, G.W.; Chen, P. Optical sequencing of single synthetic polymers. Under review at *Nature*.
2. **Ye, R.**; # Zhao, M.; # Mao, X.; Wang, Z.; Garzón, D.A.; Pu, H.; Zhao, Z.; Chen, P. Nanoscale cooperative adsorption for materials control. *Nat. Commun.*, **2021**, *12*, 4287.

Highlighted in "The many facets of cooperativity", *Nat. Rev. Mater.* ", *Nat. Commun.* Editors' Highlights in Materials Science and Chemistry, US Army DEVCOM Army Research Laboratory Public Affairs, and Cornell Chronicle.

3. Mao, X.; # **Ye, R.**; # Chen, P. Single-Molecule Fluorescence Microscopy for Characterizations of Heterogeneous Catalysts. A chapter for the Springer Handbook of Advanced Catalyst Characterization. Accepted.
4. **Ye, R.**; # Mao, X.; # Sun, X.; Chen, P. Analogy between Enzyme and Nanoparticle Catalysis: A Single-Molecule Perspective. *ACS Catal.*, **2019**, *9*, 1985–1992.
5. **Ye, R.**; # Zhukhovitskiy, A. V.; # Kazantsev, R.; Fakra, S.; Wickemeyer, B.; Toste, F. D.; Somorjai, G. A. Supported Au Nanoparticles with N-Heterocyclic Carbene Ligands as Active and Stable Heterogeneous Catalysts for Lactonization. *J. Am. Chem. Soc.* **2018**, *140*, 4144-4149.
6. **Ye, R.**; Zhao, J.; Wickemeyer, B. B.; Toste, F. D.; Somorjai, G. A. Integration of Homogeneous, Heterogeneous, and Enzyme Catalysts for Optimized Performances. *Nat. Catal.*, **2018**, *1*, 318-325.

   (Featured in LBNL news)
7. **Ye, R.**; # Liu, W.-C.; # Han, H.-L.; # Somorjai, G. A. Development and Elucidation of Superior Turnover Rates and Selectivity of Supported Molecular Catalysts. *ChemCatChem*, **2018**, *10*, 1666 –1685.
8. **Ye, R.**; # Faucher, F. F.; # Somorjai, G. A. Supported Iron Catalysts for Michael Addition Reactions. *Mol. Catal.* **2018**, *447*, 65-71.
9. Hurlburt, T. J.; Liu, W.-C.; **Ye, R.**; Somorjai, G. A. Surface Science Approach to the Molecular Level Integration of the Principles in Heterogeneous, Homogeneous, and Enzymatic Catalysis. *Top. Catal.* **2018**, *61*, 1210–1217.
10. **Ye, R.**;# Zhao, J.;# Yuan, B.;# Liu, W.-C.; De Araujo, J. R.; Faucher, F. F.; Chang, M.; Deraedt, C. V.; Toste, F. D.; Somorjai, G. A. New Insights into Aldol Reactions of Methyl Isocyanoacetate Catalyzed by Heterogenized Homogeneous Catalysts, *Nano Lett.* **2017**, *17*, 584–589.
11. **Ye, R.**; Zhukhovitskiy, A. V.; Deraedt, C. V.; Toste, F. D.; Somorjai, G. A. Supported Dendrimer-encapsulated Metal Clusters: Toward Heterogenizing Homogeneous Catalysts, *Acc. Chem. Res.*, **2017**, *50*, 1894-1901. **(Featured as the cover story of the September Issue of 2017.)**
12. Zhao, J.; # Nguyen, S.; # **Ye, R.**; # Ye, B.; # Weller H.; Somorjai, G. A.; Alivisatos, A. P.; Toste. F. D. A comparison of photo-catalytic activities and of gold nanoparticles following plasmonic and interband excitation and a strategy for harnessing interband hot carriers for solution phase oxidative photo-catalysis, *ACS Cent. Sci.*, **2017**, *3*, 482–488.
13. Deraedt, C. V.; **Ye, R.**; Toste, F. D.; Somorjai, G. A. Dendrimer-Stabilized Metal Nanoparticles as Efficient Catalysts for Reversible Dehydrogenation/Hydrogenation of N-Heterocycles. *J. Am. Chem. Soc.* **2017**, *139*, 18084.
14. Niu, K.-Y.; # Xu, Y.; # Wang, H.; # **Ye, R.**; Xin, H.; Tian, C.; Lin, F.; Lum, Y.; Bustillo, K.; Koper, M. T. M; Doeff, M. M; Ager, J.; Xu, R.; Zheng, H. A Spongy Nickel-Organic Photocatalyst for Nearly 100% Selective CO_2 to CO Conversion, *Science Adv.* **2017**, *3*, e1700921.
15. Deraedt, C. V.; Melaet, G.; Ralston, W. T.; **Ye, R.**; Somorjai, G. A. Platinum and Other Transition Metal Nanoclusters (Pd, Rh) Stabilized by PAMAM Dendrimer as Excellent Heterogeneous Catalysts: Application To the MethylCycloPentane (MCP) Hydrogenative Isomerisation. *Nano Lett.*, **2017**, *17*, 1853-1862.

16. **Ye, R.**; Yuan, B.; Zhao, J.; Ralston, W. T.; Wu, C.-Y.; Unel Barin, E.; Toste, F. D.; Somorjai, G. A. Metal Nanoparticles Catalyzed Selective Carbon-Carbon Bond Activation in the Liquid Phase. *J. Am. Chem. Soc.* **2016,** *138*, 8533-8537.
17. **Ye, R.**; Hurlburt, T. J.; Sabyrov, K.; Alayoglu, S.; Somorjai, G. A. Molecular catalysis science: Perspective on unifying the fields of catalysis. *Proc. Natl. Acad. Sci. U. S. A.* **2016,** *113*, 5159-5166.
18. Niu, K.-Y.;# Fang, L.;# **Ye, R.**;# Nordlund, D.; Doeff, M. M.; Lin, F.; Zheng, H. Tailoring Transition-Metal Hydroxides and Oxides by Photon-Induced Reactions. *Angew. Chem. Int. Ed.* **2016,** *55*, 14272-14276.
19. Liu, W.-C.; Melaet, G.; Ralston, W. T.; Alayoglu, S.; Horowitz, Y.; **Ye, R.**; Hurlburt, T.; Mao, B.; Crumlin, E.; Salmeron, M.; Somorjai, G. A. Co–Rh Nanoparticles for the Hydrogenation of Carbon Monoxide: Catalytic Performance Towards Alcohol Production and Ambient Pressure X-Ray Photoelectron Spectroscopy Study. *Catal. Lett.* **2016,** *146*, 1574-1580.
20. Na, K.; Alayoglu, S.; **Ye, R.**; Somorjai, G. A. Effect of Acidic Properties of Mesoporous Zeolites Supporting Pt Nanoparticles on Hydrogenative Conversion of Methylcyclopentane. *J. Am. Chem. Soc.* **2014,** *136*, 17207-17212.

Up-to-date citation metrics are available under my Google Scholar profile (Link)

JOURNAL REVIEWING

Peer reviewing for *Nat. Commum., Science Adv., JACS,* etc. Independently reviewed >50 articles.

Up-to-date peer reviewing records are available under my Publons profile: (Link)

TEACHING/MENTORING & SERVICE

Research mentor: Cornell University, 2018-2021

Mentored three students: Diego A. Garzon, Heting Pu, and Zhaohong Wang

Graduate student mentor: University of California, Berkeley, 2014 – 2017

Mentored five undergraduates or visiting students:

Ebru Unel Barin, Matthew Chang, Franco F. Faucher, Brent Wickemeyer, Bing Yuan

Laboratory safety coordinator: University of California, Berkeley, January 2014 – August 2015

Graduate student instructor: University of California, Berkeley

Chem 112A Organic chemistry (lecture and lab), Fall 2013

Chem 3A Chemical Structure and Reactivity (lecture and lab), Spring and Summer 2013

Teaching assistant: University of California, Los Angeles

Chem 20A Chemical Structure (discussion section), Fall 2011 and Winter 2012

WORKSHOPS/CERTIFICATES

Postdoc Leadership Development Program, Cornell University, 2021

Certificate of teaching and learning in higher education, University of California, Berkeley, 2017

MEMBERSHIPS

American Chemical Society (CATL, COLL, & PHYS), American Association for the Advancement of Science

SELECTED ORAL/POSTER PRESENTATIONS

1. Ye, R., Chen, P. “Mapping ligand adsorption affinity and cooperativity in solution at the sub-particle resolution”, oral talk, Surface Science Young Investigator Symposium, ACS Spring, March, 2022. **(Invited)**
2. Ye, R. et al. “Quantifying the adsorption affinity of capping agents on gold nanoparticles to guide shape-selective colloidal syntheses”, oral talk at ACS Fall 2021, August, 2021.
3. Ye, R. et al. “Mapping cooperative ligand adsorption at the sub-particle level”, 95th ACS Colloidal and Surface Science Symposium, online, June 2021.
4. Ye, R. “Metal Clusters for Bridging the Gaps between Heterogeneous and Homogeneous Catalysts”, Victor K. LaMer Award presentation at ACS Colloid & Surface Science Symposium, Atlanta, Georgia, June 2019. **(Invited)**
5. Ye, R. et al. “A comparison of photocatalytic activities and of gold nanoparticles following plasmonic and interband excitation”, oral talk at MRS Fall Meeting & Exhibit, Boston, MA, US, November 2017.
6. Ye, R. et al. “Solar-Driven Catalysis for Energy Conversion”, poster presented at Cambridge-Berkeley Exchange Workshop, Bodega Bay, CA, US, July 2017.
7. Ye, R. “Development of Highly Active, Selective, Stable, and Recyclable Catalysts”, oral talk at 41st annual International Precious Metal Institute Conference, Orlando, FL, US, June 2017. **(Invited)**
8. Ye, R. et al. “Integration of the three fields of catalysis: Heterogeneous, homogeneous, and enzyme”, oral talk at 25th North American Catalysis Society Meeting, Denver, CO, US, June 2017.
9. Ye, R. “New Insights into Aldol Reactions of Methyl Isocyanoacetate Catalyzed by Heterogenized Homogenous Catalysts”, poster presented at 25th North American Catalysis Society Meeting, Denver, CO, US, June 2017.
10. Ye, R. “Metal Nanoparticles Catalyzed Selective Carbon-Carbon Bond Activation in the Liquid Phase”, oral talk at 252nd ACS National Meeting, Philadelphia, PA, US, August 2016.