Victor Fung

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Nanomaterials Theory Institute, Center for Nanophase Materials Sciences
Oak Ridge National Laboratory; Oak Ridge, Tennessee 37830

RESEARCH EXPERIENCE

2019- **Eugene P. Wigner Fellow**
Oak Ridge National Laboratory, Nanomaterials Theory Institute

2015-2019 **Graduate Research Assistant**
University of California Riverside, Department of Chemistry

6/2018-12/2018 **DOE SCGSR Researcher**
Oak Ridge National Laboratory, Surface Chemistry and Catalysis Group

2014-2015 **Undergraduate Research Assistant**
Cornell University, Department of Chemistry and Chemical Biology

EDUCATION

2019 **PhD in Physical Chemistry**, Department of Chemistry, University of California Riverside
Supervised by: Dr. De-en Jiang

2015 **B.A. in Chemistry**, Department of Chemistry and Chemical Biology, Cornell University
Supervised by: Dr. Nandini Ananth

FELLOWSHIPS/AWARDS

2019- ORNL Distinguished Staff Fellowship/Eugene P. Wigner Fellowship
2019 UCR Dissertation Year Program Fellowship
Nov 2018 MRS 2018 Fall Meeting Graduate Student Silver Award
Aug 2018 ACS 256th National Meeting ACS COMP Division CCG Award
June 2018 DOE Office of Science Graduate Student Research (SCGSR) Program Fellowship
UCR Today Highlight: https://ucrtoday.ucr.edu/53035
April 2018 ACS 255th National Meeting CATL Division Graduate Student Award
April 2017 ACS 253rd National Meeting CATL Division Graduate Student Award
2015 UCR Dean's Distinguished Fellowship

RESEARCH INTERESTS

- Descriptors for adsorption and bond activation on metal oxides
- High-throughput screening and materials discovery
- Activation and catalysis of alkanes on metal oxides and metal single atoms
- Structure, physical properties and catalytic activity of bare and protected metal clusters
- Chemical bonding on surfaces
- Machine learning for chemistry

PEER-REVIEWED PUBLICATIONS

22. Huang, R.; **Fung, V.**; Zili, W.; Jiang, D.E.*, "Understanding the conversion of ethanol to propene on In2O3 from first principles", Catal. Today
21. Polo-Garzon, F.; **Fung, V**.; Nguyen, L.; Tang, Y.; Tao, F.; Cheng, Y.; Daemen, L. L.; Ramirez-Cuesta, A. J.; Foo, G. S.; Zhu, M.; Wachs, I. E.; Jiang, D. E.; Wu, Z.* "Elucidation of the Reaction Mechanism for High-Temperature Water-Gas Shift over an Industrially Relevant Copper-Chromium Iron Oxide Catalyst", J. Am. Chem. Soc., 2019, 141, 7990–7999.
20. Tang, Q.; Hu, G.; **Fung, V.**, Jiang, D.E.*, "Insights into Interfaces, Properties, and Catalysis of Atomically Precise Metal Nanoclusters from First Principles", Acc. Chem. Res., 2018, 51, 2793–2802.
19. **Fung, V.**, Wu, Z., Jiang, D.E.*, "New Bonding Model of Radical Adsorbate on Lattice Oxygen of Perovskites", J. Phys. Chem. Lett., 2018, 9, 6321-6325.
18. Polo Garzon, F.; **Fung, V.**; Liu, X.; Bickel, E.; Bai, L.; Tian, H.; Foo, G. S.; Chi, M.; Jiang, D.E.; Wu, Z.* "Understanding the Impact of Surface Reconstruction of Perovskite Catalysts on CH4 Activation and Combustion", ACS Catal., 2018, 8, 10306-10315.
17. Chen, T.; **Fung, V.**; Yao, Q.; Luo, Z.; Jiang, D.E.; Xie, J.*, "Stoichiometric Synthesis of Atomically Precise Gold Nanoclusters", J. Am. Chem. Soc., 2018, 140, 11370-11377.
16. Duchesne, P.; Li, Z.; Deming, C.; **Fung, V.**; Zhao, X.; Yuan, J.; Regier, T.; Aldalbahi, A.; Almarhoon, Z.; Chen, S.; Jiang, D. E.; Zheng, N.; Zhang, P.* "Golden Single-atomic-site Platinum Electrocatalysts", Nat. Mater., 2018, 17, 1033-1039.
[*Li, Z.; Deming, C.; **Fung, V.** share equal second author contribution*]
15. **Fung, V.**; Tao, F.; Jiang, D. E.* "Low-temperature activation of methane on doped single atoms: descriptor and prediction", Phys. Chem. Chem. Phys., 2018, 20, 22909-22914
14. Liu, J., **Fung, V.**, Wang, Y., Du, K., Zhang, S., Nguyen, L., Tang, Y., Fan, J., Jiang, D.E. and Tao, F.F.* "Promotion of catalytic selectivity on transition metal oxide through restructuring surface lattice", Appl. Catal., B. 2018, 237, 957-969
[*Liu, J.; **Fung, V**. share equal first author contribution*]
13. Yao, Q. F.; **Fung, V.**; Sun, C.; Huang, S.; Chen, T.; Jiang, D. E.; Lee, J. Y.; Xie, J. P.* "Revealing Isoelectronic Size Conversion Dynamics of Metal Nanoclusters by a Noncrystallization Approach", Nat. Commun., 2018, 9, 1979
12. Tang, Y.; Li, Y.; **Fung, V.**; Jiang, D. E.; Huang, W.; Zhang, S.; Iwasawa, Y.; Sakata, T.; Nguyn, L.; Zhang, X.; Frenkel, A.; Tao, F. F.* "Single rhodium atoms anchored in micropores for efficient transformation of methane under mild condition", Nat. Commun., 2018, 9, 1231
[*Tang, Y.; Li, Y.; **Fung, V**. share equal first author contribution; Highlighted in C&EN News: https://cen.acs.org/articles/96/web/2018/03/Catalyst-makes-acetic-acid-methane.html*]
11. Huang, R.; **Fung, V.**; Zhang, Y.; Mullins, D. R.; Wu, Z.; Jiang, D. E.* "Understanding Methanol Coupling on SrTiO3 from First Principles", J. Phys. Chem. C, 2018, 122, 7210–7216.
10. **Fung, V.**; Polo Garzon, F.; Wu, Z.; Jiang, D. E.* "Exploring Perovskites for Methane Activation from First Principles", Catal. Sci. Tech., 2018, 8, 702-709.
[*Cover Article: http://pubs.rsc.org/en/content/articlepdf/2018/cy/c8cy90012d*]
9. Yao, Q; Feng, Y.; **Fung, V.**; Yu, Y.; Jiang, D.E*; Yang, J.*; Xie, J.* "Alloying Thiolate-Protected Silver-Rich Nanoclusters by Surface Motif Exchange Reaction", Nature Commun., 2018, 8, 1555.

8. Yao, Q; Yuan, X.; **Fung, V.**; Yu, Y.; Jiang, D.E; Xie, J.* "Understanding Seed-Mediated Growth of Gold Nanoclusters: Hopping from One Stable Size to Another", Nature Commun., 2018, 8, 927.
7. **Fung, V.**; Tao, F.; Jiang, D. E.* " Trends of Alkane Activation on Doped Cobalt (II, III) Oxide from First Principles", ChemCatChem 2018, 10, 244-249.
6. Polo Garzon, F.; Yang, S.; **Fung, V.**; Chisholm, M. F.; Jiang, D. E.; Wu, Z.* "Controlling Reaction Selectivity via Surface Termination of Perovskite Catalysts", Angew. Chem., 2017, 56, 9820–9824.
5. Foo, G. S.; Polo Garzon, F.; **Fung, V.**; Jiang, D.; Overbury, S.; Wu, Z.* "Acid-Base Reactivity of Perovskite Catalysts Probed via Conversion of 2-Propanol over Titanates and Zirconates", ACS Catal., 2017, 7, 4423-4434.
4. **Fung, V.**; Tao, F.; Jiang, D.E.* "A general structure-reactivity relationship for oxygen on transition metal oxides", J. Phys. Chem. Lett., 2017, 8, 2206-2211.
3. **Fung, V.**; Jiang, D.E.* "Exploring Structural Diversity and Fluxionality of Pt_N (N=10-13) Clusters from First Principles", J. Phys. Chem. C, 121, 2017, 10796-10802.
2. Liu, J.; Zhang, S.; Zhou, Y.; **Fung, V.**; Nguyen, L.; Jiang, D. E.; Shen, W. J.; Fan, J.; Tao, F. "Tuning Catalytic Selectivity on Metal Oxide through Deposition of Nonmetallic Atoms in Surface Lattice", ACS Catal., 2016, 6, 4218-4228.
1. **Fung, V.**; Tao, F.; Jiang, D.E.* "Understanding oxidative dehydrogenation of ethane on Co_3O_4 nanorods from density functional theory", Catal. Sci. Tech., 2016, 6, 6861-6869.

PRESENTATIONS *scheduled

March 2019	**ACS 257th National Meeting CATL Division,** Oral Presentation, Orlando, FL
Feb 2019	**Gordon Research Seminar,** Oral Presentation, Ventura, CA
	Gordon Research Conference, Poster Presentation, Ventura, CA
Nov 2018	**Materials Research Society Fall Meeting,** Oral Presentation, Boston, MA
Sept 2018	**17th Annual SE Catalysis Society Symposium,** Oral Presentation, Atlanta, GA
Aug 2018	**ACS 256th National Meeting CATL Division,** Oral Presentation, Boston, MA
	ACS 256th National Meeting COMP Division, Poster Award Presentation, Boston, MA
May 2018	**3rd SoCal Theochem Symposium,** Poster Presentation, Pasadena, CA
March 2018	**UC Chemical Symposium 2018,** Oral Presentation, Lake Arrowhead, CA
March 2018	**ACS 255th National Meeting CATL Division,** Oral Presentation, New Orleans, LA
May 2017	**2nd SoCal Theochem Symposium,** Poster Presentation, Irvine, CA
April 2017	**Materials Research Society Spring Meeting,** Poster Presentation**,** Phoenix, AZ
April 2017	**ACS 253rd National Meeting COMP Division,** Oral Presentation, San Francisco, CA
Sept 2016	**2016 Pacific Coast Catalysis Society Meeting,** Poster Presentation, Riverside, CA
June 2016	**1st SoCal Theochem Symposium,** Poster Presentation, San Diego, CA
March 2016	**ACS 251st National Meeting CATL Division,** Oral Presentation, San Diego, CA

TEACHING/SERVICE

Nov 2018	**Materials Research Society Symposium Assistant**, Boston, MA
2017	**Graduate Teaching Assistant CHEM 001-A Lecture**
April 2017	**Materials Research Society Symposium Assistant**, Phoenix, AZ
2015-2016	**Graduate Teaching Assistant CHEM 001-LA Lab**

May 2016 **UC Riverside Chemistry Outreach STEM module**, Riverside, CA

SKILLS

Programming	Fortran, C++, C#, Unix, Python, Matlab, HTML/CSS/Javascript, PHP, MySQL
Scientific Software	VASP, Turbomole, DFTB+, Gaussian09, LAMMPS
Languages	English(native), Mandarin(fluent)

WEBSITES

ResearchGate	https://www.researchgate.net/profile/Victor_Fung3
Google Scholar	https://scholar.google.com/citations?user=2QsddMIAAAAJ&hl=en
LinkedIn	https://www.linkedin.com/in/victorxfung/
Twitter	https://twitter.com/victorxfung
Personal website	https://sites.google.com/site/victorxfung/home

REFERENCES

By Request.