Hao Chen, Ph.D.

Lawrence Berkeley National Laboratory, Physical Chemistry

haochen@slac.standford.edu **408-771-8998**

Research Experience:

"Understanding interfacial phenomena for solar H_2 production and N2 reduction"

Postdoctoral Researcher 2022.11 – present

- Stanford University, CA 94305

(Supervisor: Prof. Amy Cordones-Hahn & Kelly Gaffney)

"Catalysis Program"

Postdoctoral Researcher 2020.1 – 2022.10

- Lawrence Berkeley National Laboratory, Berkeley, CA

(Supervisor: Prof. Miquel Salmeron)

Experimental skills

- Synchrotron-based techniques (APXPS, ResPES, gas-cell XAS, nano FT-IR, and STXM, XRD) and Advanced nano-fabrications (e-beam evaporation and Atomic Layer deposition).
- Scanning Probe Microscopy (TEM/STEM/SEM/STM) and Elemental Analysis Spectroscopy (EDS/EELS/AES) techniques.
- Surface science techniques: TPD/AES/LEED/UPS/ISS
- System testing and trouble-shooting, for example, of gas cells to be used for X-ray techniques.
- Training of new Ph.D. candidates and general users for the operation of a new UHV system.

Relevant Publications:

i. Li, Y.; **Chen, H.**; Wang, W.; Huang, W.; Ning, Y.; Liu, Q.; Cui, Y.; Han, Y.; Liu, Z.; Yang, F.; Bao, X. "Crystal-Plane-Dependent Redox Reaction on Cu Surfaces". *Nano Res.* **2020**, *13* (6), 1677–1685.

ii. **Chen, H.**; Wang, R.; Huang, R.; Zhao, C.; Li, Y.; Gong, Z.; Yao, Y.; Cui, Y.; Yang, F.; Bao, X. "Surface and Subsurface Structures of the Pt–Fe Surface Alloy on Pt(111)". *J. Phys. Chem. C* **2019**, *123* (28), 17225–17231.

iii. **Chen, H.**; Lin, L.; Li, Y.; Wang, R.; Gong, Z.; Cui, Y.; Li, Y.; Liu, Y.; Zhao, X.; Huang, W.; Fu, Q.; Yang, F.; Bao, X. "CO and H2 Activation over G-ZnO Layers and w-ZnO(0001)". *ACS Catal.* **2019**, *9* (2), 1373–1382.

iv. **Chen, H.**; Liu, Y.; Yang, F.; Wei, M.; Zhao, X.; Ning, Y.; Liu, Q.; Zhang, Y.; Fu, Q.; Bao, X. "Active Phase of FeOx/Pt Catalysts in Low-Temperature CO Oxidation and Preferential Oxidation of CO Reaction". *J. Phys. Chem. C*

2017, *121* (19), 10398–10405.

v. **Chen, H.**, Matthias Blatnik, Francesca Mirabella, Giada Franceschi, Michele Riva, Michael Schmid, Ulrike Diebold, Margareta Wagner "A hydrophilic surface with hydrophobic pockets: In_2O_3 (111)". **ACS Nano**

Education:

Joint Ph.D. in Physical Chemistry 2013-2019
*2013-2018: Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China (Supervisor: Prof. Xinhe Bao)
*2018-2019: Institute for Applied Physics, Vienna University, of Technology, Austria (Supervisor: Prof. Ulrike Diebold)

B.S. in Chemistry, Zhengzhou University, China 2009-2013

Personal links:

https://scholar.google.com/citations?user=1NsG1BQAAAAJ&hl=en

Referees

1 **Prof. Miquel Salmeron**
Email: mbsalmeron@lbl.gov
Materials Science Division
Lawrence Berkeley National Laboratory
Adjunct Professor, Materials Science and Engineering Department,
University California, Berkeley

2 **Prof. Ulrike Diebold**
Email: diebold@iap.tuwien.ac.at
Institute for Applied Physics, TU Wien

3 **Prof. Xinhe Bao**
Email: xhbao@dicp.ac.cn
Dalian Institute of Chemical Physics (DICP),
Chinese Academy of Sciences (CAS)