

Hao Wu

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Education

- 2011–2014 **B.S. Chemistry**, *University of California, Berkeley*, Berkeley, CA.
GPA:3.863, High Honors
Advisor: Naomi Ginsberg
- 2015– **Ph.D. in Chemistry**, *Harvard University*, Cambridge, MA.
Present Advisor: Venkatesh Murthy

Experience

Research

- 2015– **Graduate Researcher**, *Harvard University*.
Present Advisor: Venkatesh Murthy
- Implemented optical circuit-mapping system with patterned light from spatial light modulator (SLM) on neurons transfected with voltage indicators and channelrhodopsins.
 - Wrote python-based, modular training framework for animal behavior experiments. Built headfixed virtual-reality behavior training chamber for odor navigation research.
 - Developed patterned odor delivery system with high dynamic range and high time-resolution. Established new behavior training protocol to study animals' temporal processing of highly fluctuating chemical signal in the environment.
- 2015 **Associate Specialist**, *Lawrence Berkeley National Laboratory*.
Mentor: Frank Ogletree and Edward Barnard
- Worked on the development of FoundryScopeCL, a python-based software system for data acquisition (DAQ) and hardware control for scanning electron microscopy.
- 2013–2015 **Research Assistant**, *University of California, Berkeley*.
Advisor: Naomi Ginsberg
- Built a complete set of instruments and software package in MATLAB and LabVIEW to study the local linear absorption behavior of organic photovoltaic (OPV) films.
 - Proposed a model for grain boundary composition of OPV thin films.
- ### Teaching
- 2016–2018 **Teaching Fellow**, *Harvard University*.
PS11: Foundations and Frontiers of Modern Chemistry (Spring 2016 with James Anderson)
PS10: Quantum and Statistical Foundations of Chemistry (Fall 2016 with Adam Cohen)
MCB353: Building Your Own Microscope (Spring 2018 with Julien Grimaud)
- 2013–2014 **Undergraduate Student Instructor**, *University of California, Berkeley*.
Chem 4A: General Chemistry (Fall 2013 with Birgitta Whaley)
Chem 4B: General Chemistry and Quantitative Analysis (Spring 2014 with Ronald Cohen and Jamie Cate)

Skills

Extensive experience in building optical setups and other instruments.
Extensive programming experience: Python, MATLAB, LabVIEW, C++.
Experience with neuronal culture, transfection and lentivirus production.
Experience with odor-guided animal behavior training.

Awards

- 2018 **Quantitative Biology Initiative Student Award**, *Harvard University*.
2016 **Distinction in Teaching Award**, *Harvard University*.
2015 **Koo Liu Siok-Han Award in Chemistry**, *University of California, Berkeley*.
Graduation Award for top Chemistry student in research.
2013-2014 **Saegebarth Undergraduate Research Stipend**, *University of California, Berkeley*.

Publications

- [1] Linlin Z. Fan, Ralda Nehme, Yoav Adam, Eun Sun Jung, Hao Wu, Kevin Eggan, Don B. Arnold, and Adam E. Cohen. All-optical synaptic electrophysiology probes mechanism of ketamine-induced disinhibition. *Nature Methods*, 15(10):823, 2018.
- [2] Connor G. Bischak, Craig L. Hetherington, Hao Wu, Shaul Aloni, D. Frank Ogletree, David T. Limmer, and Naomi S. Ginsberg. Origin of reversible photoinduced phase separation in hybrid perovskites. *Nano Letters*, 17(2):1028–1033, 2017.
- [3] Cathy Y. Wong, Benjamin L. Cotts, Hao Wu, and Naomi S. Ginsberg. Exciton dynamics reveal aggregates with intermolecular order at hidden interfaces in solution-cast organic semiconducting films. *Nature Communications*, 6:6946, 2015.
- [4] Sahar Sharifzadeh, Cathy Y. Wong, Hao Wu, Benjamin L. Cotts, Leeor Kronik, Naomi S. Ginsberg, and Jeffrey B. Neaton. Relating the physical structure and optoelectronic function of crystalline tips-pentacene. *Advanced Functional Materials*, 25(13), 4 2015.
- [5] Cathy Y. Wong, Samuel B. Penwell, Benjamin L. Cotts, Rodrigo Noriega, Hao Wu, and Naomi S. Ginsberg. Revealing exciton dynamics in a small-molecule organic semiconducting film with subdomain transient absorption microscopy. *The Journal of Physical Chemistry C*, 117(42):22111–22122, 10 2013.
- [6] Yoav Adam, Jeong J Kim, Shan Lou, Yongxin Zhao, Daan Brinks, Hao Wu, Mohammed A Mostajo-Radji, Simon Kheifets, Vicente Parot, Selmaan Chettih, Katherine J Williams, Samouil L Farhi, Linda Madisen, Christopher D Harvey, Hongkui Zeng, Paola Arlotta, Robert E Campbell, and Adam E Cohen. All-optical electrophysiology reveals brain-state dependent changes in hippocampal subthreshold dynamics and excitability. *bioRxiv*, 2018.