Bing Fu

Contact Information

83 Tat Chee Ave., Kowloon Tong
Kowloon, Hong Kong, China
Website: https://www.bingfu-lab.org/

bingfu@cityu.edu.hk
+852 3442 2045

Employment

City University of Hong Kong
Assistant Professor, Biomedical Engineering, July 2023 - present

Professional Preparation

Cornell University, Ithaca, U.S., June 2017 - June 2023
Postdoctoral Associate
Advisor: Peng Chen
Research: Live-cell fluorescence imaging

University of Michigan, Ann Arbor, U.S.
Ph.D. in Chemistry, May 2017
Advisor: Julie S. Biteen
Dissertation: *Interactions between Fluorescent Molecules and Plasmonic Nanoparticles: A Super Resolution Study*

Shandong University, Jinan, China
B.A. in Chemistry, July 2012

Select Honors and Awards

Honorable mention, Graduate Women in Science National Fellowship Program, U.S., 2022

Karle symposium travel award, Department of Chemistry, University of Michigan, 2016

Rackham Graduate School Summer Awards, University of Michigan, 2016

Departmental fellowship, Department of Chemistry, University of Michigan, 2015-2016

Florence Fenwick Outstanding Graduate Student Instructor Award, Department of Chemistry, University of Michigan, 2015

Rackham Graduate Student Research Grant, 2014-2015

Outstanding Summer Camp Members, Peking University, 2011

Second Grade Scholarship for Excellent Students, Shandong University, 2009-2010

Outstanding Student for Academic Achievements, School of Chemistry and Chemical Engineering, Shandong University, 2010

Publications

† equal contribution, * corresponding author

[1] Mokshin Suri, Farshid S. Jazi, Jack C. Crowley, Youngchan Park, **Bing Fu**, Peng Chen, Warren R. Zipfel, Buz Barstow, and Tobias Hanrath*. Spatially resolved charge-transfer kinetics at the quantum dot-microbe interface using fluorescence lifetime imaging microscopy. *Proceedings of the National Academy of Sciences* **122**(12) (2025).

[2] Wenyao Zhang, Christine E. Harper, Junsung Lee, **Bing Fu**, Malissa Ramsukh, Christopher J. Hernandez, and Peng Chen*. Transporter excess and clustering facilitate adaptor-protein shuttling for bacterial efflux. *Cell Reports Physical Science* **6**, 102441 (2025).

[3] Shuchi Zhang, Deqi Fan, Qingdian Yan, Yi Lu, Donglei Wu, **Bing Fu**, and Ming Zhao*. Single-molecule fluorescence imaging of photocatalytic nanomaterials. *Journal of Materials Chemistry A* **12**, 19627–19662 (2024).

[4] **Bing Fu**†, Xianwen Mao†, Youngchan Park, Zhiheng Zhao, Tianlei Yan, Won Jung, Danny Duckworth, Wenjie Li, Brooke Pian, Farshid Salimijazi, Mokshin Suri, Tobias Hanrath, Buz Barstow, and Peng Chen*. Single-cell multimodal imaging uncovers energy conversion pathways in biohybrids. *Nature Chemistry* **15**, 1400–1407 (2023).

[5] **Bing Fu**†, Kushal Sengupta†, Lauren A Genova†, Ace George Santiago, Won Jung, Łukasz Krzemiński, Udit Kumar Chakraborty, Wenyao Zhang, and Peng Chen*. Metal-induced sensor mobilization turns on affinity to activate regulator for metal detoxification in live bacteria. *Proceedings of the National Academy of Sciences* **117**(24), 13248–13255 (2020).

[6] Feifan Wang and **Bing Fu**. 4 - Anion-exchange membranes for direct methanol alkaline fuel cells. In Kingshuk Dutta, editor, *Direct Methanol Fuel Cell Technology*, pages 71–106. Elsevier, (2020).

[7] Lauren A Genova†, Melanie F Roberts†, Yu-Chern Wong, Christine E Harper, Ace George Santiago, **Bing Fu**, Abhishek Srivastava, Won Jung, Lucy M Wang, Łukasz Krzemiński, Xianwen Mao, Xuanhao Sun, Chung-Yuen Hui, Peng Chen*, and Christopher J Hernandez*. Mechanical stress compromises multicomponent efflux complexes in bacteria. *Proceedings of the National Academy of Sciences* **116**(51), 25462–25467 (2019).

[8] **Bing Fu**, Benjamin P Isaacoff, and Julie S Biteen*. Super-Resolving the Actual Position of Single Fluorescent Molecules Coupled to a Plasmonic Nanoantenna. *ACS Nano* **11**(9), 8978–8987 (2017).

[9] **Bing Fu**, Jessica D Flynn, Benjamin P Isaacoff, David J Rowland, and Julie S Biteen*. Super-Resolving the Distance-Dependent Plasmon-Enhanced Fluorescence of Single Dye and Fluorescent Protein Molecules. *The Journal of Physical Chemistry C* **119**(33), 19350–19358 (2015).

[10] Esther Wertz, Jessica D Flynn, Courtney N Talicska, **Bing Fu**, Benjamin P Isaacoff, and Julie S Biteen*. Plasmon-enhanced fluorescence permits super-resolution imaging in vitro and in cells. *Laser Science* page LTh3H.6 (2013).

Presentations

"Single-cell single-molecule fluorescence imaging in bacteria for energy and health ", Invited Speaker, HKUST, Hong Kong, Sept. 2024

"Single-cell imaging in nano-bio hybrids for studying energy conversion ", Keynote Speaker, 1st International Symposium on Chemical and Biomedical Imaging (CBMI-I), Nanjing, Aug. 2024

"Seeing bacteria beyond diffraction limit: Application of single-molecule super-resolution imaging in studying molecular mechanisms in microbes", Invited talk, SusTech, School of Environmental Science and Engineering, Shenzhen, March. 2024

"Electron Transfer Mechanism at the Microbe-Semiconductor Interface with Single-cell Resolution ", Invited talk, The 2024 International Conference on Bacteria and Global Health, Shenzhen, Jan. 2024

"Single-molecule study of copper regulation two-component system CusS-CusR in *E. coli*", Best Poster Award, Annual Academic Meeting of Chinese Society for Microbiology, Shanghai, China, Oct. 2023

"Dissecting the signal transduction dynamics for copper homeostasis in live *E. coli*", Invited talk, American Chemical Society (ACS) National Meeting and Exposition, Chicago, IL, USA, Aug. 2022

"Proteins are smart: A single-molecule study of metal homeostasis signal transduction in *E. coli*", Invited talk, University of Chicago Future Faculty Conference, Chicago, IL, USA, May 2022

"Proteins are smart - a single molecule study of CusRS system for efficient Cu homeostasis in *E. coli*", Oral presentation, 5th Annual Cornell Biophysics Symposium, Ithaca, NY, USA, Nov. 2019

"Single Molecule super-resolution study of distance-dependent plasmonic fluorescence enhancement and emission mislocalization", Oral presentation, 253rd American Chemical Society (ACS) National Meeting and Exposition, San Francisco, CA, USA, Apr. 2017

"Single-molecule super-resolution microscopy study of the distance-dependent interaction between a fluorescent molecule and a nano-antenna", Oral presentation, 252nd American Chemical

Society (ACS) National Meeting and Exposition, Philadelphia, PA, USA, Aug. 2016

"Study of the Distance-Dependent Interaction between Fluorescent Molecule and Nano-Antennas by Single-Molecule Super-Resolution Microscopy", Poster presentation, Gordon Research Conference, South Hadley, MA, USA, June, 2016

"Single-molecule super-resolution microscopy study of the distance-dependent interaction between a fluorescent molecule and a nano-antenna", Oral presentation, 47th ACS Central Regional Meeting, Covington, KY, USA, May 2016

"Super-Resolution Study of the Distance Dependence of Single-Molecule Plasmon-Enhanced Fluorescence", Oral presentation, Materials Research Society (MRS) Spring Meeting and Exhibit, San Francisco, CA, USA, April 2015

"Distance-Dependent Plasmon-Induced Fluorescence Enhancement of Single Molecules on a Gold Nanoparticle Substrate", Oral presentation, Victor C. Vaughan Symposium, Ann Arbor, MI, USA, Aug. 2014

"Distance-Dependent Plasmon-Induced Fluorescence Enhancement of Single Molecules on a Gold Nanoparticle Substrate", Poster presentation, Gordon Research Conference, South Hadley, MA, USA, June, 2014

External Grant

RGC Early Career Schem, 2025-
Interplay between Microbial Metal Regulation and Chemotaxis at the Host-Pathogen Interface Studied by Single-molecule Super-resolution Fluorescence Microscopy
Role: PI

NSFC Young Scientist Fund, 2025-
Live-cell Exploration of Cpxa/Cpxr Dynamics in Signal Transduction for Antibiotic Resistance by Super-Resolution Single-Molecule Imaging
Role: PI

Teaching

Department of Biomedical Engineering, CityU Hong Kong
Course leader: BME4104 Technology for Drug Discovery, 2023-present

Department of Chemistry, University of Michigan
Graduate Student Instructor
CHEM 125 - General Chemistry lab, Sept. 2012 - Dec. 2013
CHEM 130 - General Chemistry, June 2013 - Aug. 2013
CHEM 125 - General Chemistry lab, June 2014 - Aug. 2014
Graduate Student Administrator
CHEM 125 - General Chemistry lab, Sept. 2014 - Dec. 2015

Service and Outreach

***Chemical & Biomedical Imaging*, Early Career Advisory Board Member**, 2023-present
***BMEMat*, Youth Editorial Board Member**, 2023-present
Graduate Women in Science Membership, 2021-2022
Discussion leader, Responsible Conduct of Research Symposium, Cornell University, 2019
American Chemical Society Member, 2016-2017
Sponsored AAAS/Science Membership, nominated by Department Chair, 2015-2017
Poster judge at Vaughan Symposium, University of Michigan, 2014
Scientific Content Reviewer, reviewed more than 30 publications in journals including:
Nature Methods
ACS Photonics
ACS Sensors
ACS Nano

Journal of the American Chemistry Society
Nano Letters
Angewandte Chemie International Edition
Journal of Physical Chemistry Letters