

# HAIHING LI

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## EDUCATION

### Columbia University

Ph.D. in Applied Physics (Advisor: Latha Venkataraman) 2017

### University of Science and Technology of China

B.S. in Physics (Advisor: Xianhui Chen) 2012

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## PROFESSIONAL APPOINTMENT

### City University of Hong Kong, Department of Physics

Assistant Professor 2021-

### Columbia University, Department of Chemistry

Charles H. Revson Senior Fellow in Biomedical Sciences (Advisor: Ruben L. Gonzalez, Jr.) 2019-2021

Postdoctoral Scholar 2017-2019

### University of Oxford, Department of Physics

Undergraduate Student Researcher (Advisor: Brian J. Smith) 2011

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## AWARDS

Journal of Materials Chemistry C - Emerging Investigator Award 2022

ACS BIOL Division Travel Award, American Chemical Society 2021

Virtual Travel Award, The Biophysical Society 2021

Charles H. Revson Senior Postdoctoral Fellowship in Biomedical Science 2019

Travel Award, NextProf Science Workshop, University of Michigan 5/2019

Travel Award, Future Faculty Workshop, Case Western Reserve University 7/2017

Chinese Government Award for Outstanding Students Abroad 4/2017

Ovshinsky Student Travel Award, American Physical Society 3/2017

Columbia Teaching Observation Fellowship 2016

Student Travel Grant, Columbia Graduate Student Advisory Council 5/2016

Professional Development Scholarship, Columbia Engineering Graduate Student Council 3/2016

National University Student Innovation Program Grant, Ministry of Education of China 10/2012

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## PEER-REVIEWED PUBLICATIONS

† Contributed equally to this work. \* Corresponding author.

20. W. Guo, T. Quainoo, Z. F. Liu, **H. Li**<sup>\*</sup>, Robust Binding between Secondary Amines and Au Electrodes, submitted

19. B. Wu, W. Guo, J.M. An, **H. Li**<sup>\*</sup>, Control of Molecular Conductance by pH, **J. Mater. Chem. C**, 10, 13483-13498 (2022).

18. H. Gamper<sup>†</sup>, **H. Li**<sup>†</sup>, I. Masuda, M. Szanti-Kis, T. Christian, A. B. Conn, G. Blaha, E. J. Petersson, R. L. Gonzalez, Jr, Y. M. Hou, Insights into Genome Recoding from the Mechanism of a Classic +1-Frameshift-Suppressor tRNA, **Nat. Commun.** 12(1), 1-18 (2021).

17. M. Garner<sup>†</sup>, H. Li<sup>†</sup>, M. Neupane<sup>†</sup>, Q. Zou, T. Liu, T. A. Su, Z. Shangguan, D. W. Paley, F. Ng, S. Xiao, C. Nuckolls, L. Venkataraman, G. C. Solomon, Permethylated Introduces Destructive Quantum Interference in Saturated Silanes, **J. Am. Chem. Soc.** 141 (39), 15471-15476 (2019).
16. M. S. Inkpen, Z.-F. Liu, H. Li, L. Campos, J. B. Neaton, L. Venkataraman, Non-chemisorbed gold-sulfur binding prevails in self-assembled monolayers, **Nat. Chem.** 11 (4), 351-358 (2019).
15. H. Li<sup>†</sup>, M. Garner<sup>†</sup>, Z. Shangguan<sup>†</sup>, Y. Chen, Q. Zheng, T. Su, M. Neupane, T. Liu, M. Steigerwald, F. Ng, C. Nuckolls, S. Xiao, G. Solomon, L. Venkataraman, Large Variations in Single Molecule Conductance of Cyclic and Bicyclic Silanes, **J. Am. Chem. Soc.** 140 (44), 15080-15088 (2018).
14. M. H. Garner<sup>†</sup>, H. Li<sup>†</sup>, Y. Chen<sup>†</sup>, T. A. Su, Z. Shangguan, D. W. Paley, T. Liu, F. Ng, H. Li, S. Xiao, C. Nuckolls, L. Venkataraman, G. C. Solomon, Comprehensive Suppression of Single-Molecule Conductance using Destructive  $\sigma$ -interference, **Nature** 558, 415-419 (2018).
13. H. Li<sup>†</sup>, T. A. Su<sup>†</sup>, M. Camarasa-Gómez<sup>†</sup>, D. Hernangómez-Pérez, S. E. Henn, V. Pokorný, R. Korytár, M. L. Steigerwald, C. Nuckolls, F. Evers, L. Venkataraman, Silver Makes Better Electrical Contacts to Thiol Terminated Silanes than Gold, **Angew. Chem. Int. Ed.** 56, (45), 14145-14148 (2017).
12. H. Li<sup>†</sup>, M. Garner<sup>†</sup>, T. Su<sup>†</sup>, A. Jensen, M. Inkpen, M.L. Steigerwald, L. Venkataraman, G. Solomon, C. Nuckolls, Extreme Conductance Suppression in Molecular Siloxanes, **J. Am. Chem. Soc.** 139 (30), 10212-10215 (2017).
11. T. Su, H. Li, R. Klausen, N. Kim, M. Neupane, J. Leighton, M. L. Steigerwald, L. Venkataraman, C. Nuckolls, Silane and Germane Molecular Electronics, **Acc. Chem. Res.** 50 (4), 1088-1095 (2017).
10. H. Li, N. Kim, T. Su, M. L. Steigerwald, C. Nuckolls, P. Darancet, J. Leighton, L. Venkataraman, Mechanism for Si-Si Bond Rupture in Single Molecule Junctions, **J. Am. Chem. Soc.** 138 (49), 16159-16164 (2016).
9. N. Kim, H. Li, L. Venkataraman, J. Leighton, High-Conductance Pathways in Ring-Strained Disilanes by Way of Direct  $\sigma$ -Si-Si to Au Coordination, **J. Am. Chem. Soc.** 138 (36), 11505-11508 (2016).
8. T. Su<sup>†</sup>, H. Li<sup>†</sup>, R. Klausen, J. R. Widawsky, A. Batra, M. L. Steigerwald, L. Venkataraman, C. Nuckolls, Tuning Conductance in  $\pi - \sigma - \pi$  Single-Molecule Wires, **J. Am. Chem. Soc.** 138 (24), 7791-7795 (2016).
7. H. Li<sup>†</sup>, M. Garner<sup>†</sup>, Z. Shangguan<sup>†</sup>, T. Su, M. Neupane, P. Li, A. Velian, M. L. Steigerwald, S. Xiao, C. Nuckolls, G. Solomon, L. Venkataraman, Conformations of Cyclopentasilane Stereoisomers Control Molecular Junction Conductance, **Chem. Sci.** 7, 5657-5662 (2016)
6. T. Su<sup>†</sup>, H. Li<sup>†</sup>, V. Zhang, M. Neupane, A. Batra, R. S. Klaussen, B. Kumar, M. L. Steigerwald, L. Venkataraman, C. Nuckolls, Single-Molecule Conductance in Atomically Precise Germanium Wires, **J. Am. Chem. Soc.** 137 (38), 12400-12405 (2015).
5. H. Li, T. Su, M. L. Steigerwald, C. Nuckolls, L. Venkataraman, Electric Field Breakdown in Single Molecule Junctions, **J. Am. Chem. Soc.** 137 (15), 5028-5033 (2015).
4. T. Su, H. Li, M. L. Steigerwald, L. Venkataraman, C. Nuckolls, Stereoelectronic Switching in Single-Molecule Junctions, **Nat. Chem.** 7, 215-220 (2015).
3. R. Klausen, J. Widawsky, T. Su, H. Li, M.L. Steigerwald, L. Venkataraman, C. Nuckolls, Evaluating Atomic Components in Fluorene Circuits, **Chem. Sci.** 5, 1561-1564 (2014).
2. W. Chen, H. Li, J. R. Widawsky, C. Appayee, L. Venkataraman, R. Breslow, Aromaticity Decreases Single-Molecule Junction Conductance, **J. Am. Chem. Soc.** 136, 918-920 (2014).
1. T. Su, J. Widawsky, H. Li, R. Klausen, J. Leighton, M. Steigerwald, L. Venkataraman, C. Nuckolls, Silicon Ring Strain Creates High-Conductance Pathways in Single-Molecule Circuits, **J. Am. Chem. Soc.** 135, 18331 (2013)

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## INVITED TALKS

Workshop on molecular electronics in Inner Mongolia, Hohhot, Inner Mongolia	8/2023
International Seminar on Interdisciplinary Materials, Wuhan, Hubei	7/2023
College of Chemistry and Molecular Science, Wuhan University, Wuhan, Hubei	7/2023
School of Physics and Electronic Sciences, Shandong Normal University, Jinan, Shandong	6/2023
HK Tech Forum Quantum Physics and Complex Systems, CityU, Hong Kong	12/2022

Exotic Quantum Effects in Complex Materials, CityU, Hong Kong	6/2022
Annual Symposium, CityU, Department of Physics, Hong Kong	6/2022
The Revson Foundation Annual Meeting and Dinner, Virtual	5/2021
Peking University, Physics Seminar, Beijing	5/2016
Columbia University, Physical Chemistry Seminar, New York, NY	10/2015
Semiconductor Research Corporation Annual Review, Albany, NY	8/2015
Quantum Interference Workshop, Copenhagen, Denmark	7/2015

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#### CONTRIBUTED PRESENTATIONS

Talk, The 33rd Chinese Chemical Society biennial meeting, Qingdao, Shandong	6/2023
Poster, American Chemical Society Fall Meeting, Atlanta, GA	8/2021
Talk, City University of New York (CUNY) - Columbia Biophysics Symposium, CUNY, New York, NY	6/2021
Talk, Platform session at the Biophysical Society 65th Annual Meeting, Virtual	2/2021
Talk, RNA club - an official RNA Salon of the RNA Society, Columbia University, New York, NY	10/2019
Talk, Protein Synthesis and Translational Control EMBO meeting, EMBL Heidelberg, Germany	9/2019
Poster, Single Molecule Approaches to Biology Gordon Research Conference, Mount Snow, VT	7/2018
Talk, American Physical Society March Meeting, New Orleans, LA	3/2017
Talk, Techcon, Austin, TX	9/2016
Poster, Conductivity & Magnetism in Molecular Materials Gordon Conference, Mount Holyoke, MA	8/2016
Poster, Women in Science at Columbia University Graduate Research Symposium, New York, NY	4/2016
Talk, American Physical Society March Meeting, Baltimore, MD	3/2016
Talk, Applied Physics and Applied Mathematics Seminar at Columbia University, New York, NY	2/2016
Poster, Frontiers of Condensed Matters Physics workshop, University of British Columbia, Canada	5/2015
Talk, Applied Physics and Applied Mathematics Seminar at Columbia University, New York, NY	4/2015
Talk, American Physical Society March Meeting, San Antonio, TX	3/2015

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#### TEACHING EXPERIENCE

PHY2213 Advanced Measurement and Instrumentation, City University of Hong Kong	Spring 2024
PHY6522 Advanced Imaging Physics, City University of Hong Kong	Spring 2023, 2024
PHY1203 General Physics III, City University of Hong Kong	Spring 2023
PHY4283 Physics in Medicine, City University of Hong Kong	Fall 2022, 2023
Biological & Biomedical Science, Yale Young Global Scholars, Yale University	Summer 2019
Applications of Biotechnologies (Guest Lecturer), Yeshiva University	Spring 2019
Nano: from Science to Technology, Columbia University	2013-2019

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#### ADVISING EXPERIENCE

**Ph.D. students:** Jianming An (7/2022-); Weiyi Guo (9/2022-); Song Han (9/2023-).

**Master students:** Xueling Xu (7/2023-); Yihao Zhang (9/2023-).

**Undergraduate students:** Zhao Zhang (9/2022-); Guangfu Ni (1/2023-5/2023).

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#### SELECTED SERVICE

Deputy Research Degree Coordinator (PhD degree), CityU Physics	2022-
Organizing Committee, PHY annual symposium, CityU	2023
Judge, CityU Science Video Competition	2022