

Xueyue Zhang

PhD candidate in Applied Physics, Caltech

+1 (626)463-3382

✉ xzhang7@caltech.edu

🌐 <https://xueyue-sherry-zhang.github.io/>

Research Positions

Research assistant, Caltech

Advisor: Oskar J. Painter, John G. Braun Professor of Applied Physics

Aug 2017 - Present

Summer undergraduate research fellow, Caltech

Advisor: Kerry J. Vahala, Ted and Ginger Jenkins Professor of Applied Physics

June 2016 - Sept 2016

Undergraduate researcher, Peking University

Advisor: Yun-Feng Xiao, Associate Professor of Physics

Jan 2016 - June 2017

Undergraduate researcher, Georgia Tech

Advisor: Wenshan Cai, Associate Professor of Electrical and Computer Engineering

Sept 2015 - Dec 2015

Undergraduate researcher, Tsinghua University

Advisors: Wei Zhang, Associate Professor of Electronic Engineering. Yu-xi Liu, Professor of Microelectronic Science and Engineering

Sept 2014 - June 2017

Education

Ph. D. in Applied Physics (expect in Feb. 2023)

California Institute of Technology

Sept 2017 - Present

Exchange student in Electrical and Computer Engineering

Georgia Institute of Technology

Sept 2015 - Dec 2015

B. Eng. in Microelectronic Science and Engineering

Tsinghua University

Sept 2013 - June 2017

Research Interests

- **Quantum simulations:** many-body physics, topological physics, quantum optics
- **Quantum devices and their applications:** superconducting circuits, microwave metamaterials
- **Micro- and nano-photonics:** ultra-high-quality optical resonators, nonlinear optics

Academic Awards

Yariv/Blauvelt fellowship, Caltech

2017

Graduate fellowships, Stanford (3-year SGF fellowship)/UC Berkeley/MIT/Harvard/Princeton.
All declined for the Caltech fellowship

2017

Outstanding Graduate, Beijing Ministry of Education

2017

Best undergraduate thesis, Tsinghua University

2017

First place in college entrance exam, Xinjiang Ministry of Education

2013

Publications

Up to date list is always available on my Google Scholar page [\[link\]](#).

- “Quantum electrodynamics in a topological waveguide”
Eunjong Kim*, **Xueyue Zhang*** (***Equal contribution**), Vinicius S Ferreira, Jash Banker, Joseph K Iverson, Alp Sipahigil, Miguel Bello, Alejandro Gonzalez-Tudela, Mohammad Mirhosseini, Oskar Painter
Phys. Rev. X **11** 1, 011015 (2021)
Featured in *Physics*

- “Cavity quantum electrodynamics with atom-like mirrors”
 Mohammad Mirhosseini*, Eunjong Kim*, **Xueyue Zhang**, Alp Sipahigil, Paul B Dieterle, Andrew J Keller, Ana Asenjo-Garcia, Darrick E Chang, Oskar Painter
Nature **569**, 7758 (2019)
- “Metasurfaces for near-eye augmented reality”
 Shoufeng Lan*, **Xueyue Zhang***, Mohammad Taghinejad, Sean Rodrigues, Kyu-Tae Lee, Zhaocheng Liu, Wenshan Cai
ACS Photonics **6**, 4 (2019)
- “Symmetry-breaking-induced nonlinear optics at a microcavity surface”
Xueyue Zhang*, Qi-Tao Cao*, Zhuo Wang, Yu-xi Liu, Cheng-Wei Qiu, Lan Yang, Qihuang Gong, Yun-Feng Xiao
Nature Photonics **13**, 1 (2019)
- “Single-mode dispersive waves and soliton microcomb dynamics”
 Xu Yi*, Qi-Fan Yang*, **Xueyue Zhang***, Ki Youl Yang, Xinbai Li and Kerry Vahala
Nature Communications **8**, 14869 (2017)
- “A point acoustic device based on aluminum nanowires”
 Qian-Yi Xie*, Zhen-Yi Ju*, He Tian, Qing-Tang Xue, Yuan-Quan Chen, Lu-Qi Tao, Mohammad Ali Mohammad, **Xue-Yue Zhang**, Yi Yang and Tian-Ling Ren
Nanoscale **8**, 10 (2016)

Conference Presentations

- Xueyue Zhang, Eun Jong Kim, Oskar Painter, “Characterization of a superconducting metamaterial quantum many-body simulator”, APS March Meeting 2022, Chicago IL
- Xueyue Zhang, Eun Jong Kim, Oskar Painter, “A superconducting metamaterial quantum processor for studying quantum many-body physics: Part 1”, APS March Meeting 2021, virtual
- Xueyue Zhang, Eun Jong Kim, Alp Sipahigil, Vinicius Ferreira, Jash Banker, Mohammad Mirhosseini, Oskar Painter, “Quantum electrodynamics in a topological metamaterial: Part 2”, APS March Meeting 2020, virtual
- Xueyue Zhang, Eun Jong Kim, Mohammad Mirhosseini, Alp Sipahigil, Paul Dieterle, Andrew Keller, Ana Asenjo-Garcia, Darrick Chang, Oskar Painter, “Waveguide-mediated interaction of artificial atoms in the strong coupling regime, part 1”, APS March Meeting 2019, Boston MA
- Xueyue Zhang, Eun Jong Kim, Mohammad Mirhosseini, Alp Sipahigil, Andrew Keller, Oskar Painter, “Interaction of a superconducting qubit and an atomic mirror in waveguide quantum electrodynamics”, Gordon Research Conference: Quantum Science 2018, Eaton MA

Professional Activities

Reviewer for *Nature Physics*, *Physical Review Letters*, *Physical Review A*, *Physical Review B*, *Scientific Report*

Teaching and Mentoring

- **Teaching assistant**, EE/APh 158 Quantum Electrical Circuits. Instructor: Prof. Mohammad Mirhosseini. Caltech 2022.
 Co-developed the course content and homework for the first-run class. Lectured the part on quantum gates. TA rating 4.92/5.
- **Invited teaching**, HSSP summer school: Quantum Information and Technology, MIT 2019
- **Research mentor**, for Zhaoyi Zheng, an undergraduate summer researcher at Caltech (now a PhD student at Princeton) in 2020.
- **Research mentor**, for Aziza Almanakly, an undergraduate summer researcher at Caltech (now a PhD student at MIT) in 2019.

Outreach and Diversity Activities

- Invited speaker for a lightning talk session (virtual) with hundreds of high school students as the audience. Organized by QubitByQubit , Dec 12, 2021.
- Invited speaker for a scientific talk with audience of junior and senior undergraduate women*. Organized by FUTURE at Caltech, Sept 13, 2021.
- Steering committee member, Womxn in EAS, Caltech, Aug 2021 – present.