

HAIYUE HUANG

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EDUCATION

Northwestern University

Ph.D. in Materials Science and Engineering

Evanston, IL, US

Sep. 2017 – Jun. 2022

Shanghai Jiao Tong University

B.S. in Materials Science and Engineering

Shanghai, China

Sep. 2013 – Jul. 2017

JOURNAL PUBLICATIONS

⁺Equal contribution, *Corresponding author

1. Jeremy Levy, Chandralekha Singh, Jack Diab, **Haiyue Huang**, Aswini Ramankutty, Mamun Sarker, “What Physics Papers Don’t Tell You”, *Nature Physics*, 1, 2026.
2. **Haiyue Huang**, Prineha Narang, Ioannis Petrides*, “Bound States in Bound States in Second-Order Topological Graphitic Structures”, arXiv:2605.11164, under review.
3. **Haiyue Huang**⁺, Mumun Sarker⁺, Percy Zahl, C Stephen Hellberg, Jeremy Levy, Ioannis Petrides*, Alexander Sinitskii*, Prineha Narang*, “Topological Solitons in Square-Root Graphene Nanoribbons Controlled by Electric Fields”, *Physical Review Letters*, 2025, 134, 256601.
4. Christian Machado⁺, Benjamin Stern⁺, **Haiyue Huang**, Asma Ul Hosna Meem, Jiaxing Huang, Kyoo-Chul Kenneth Park*, “Robust Hybrid Diffusion Control for Long-Term Scalable Frost Prevention”, *Science Advances*, 2024, 10, eadq8525.
5. **Haiyue Huang***, “To Disperse or Not to Disperse: A Hidden Piece of Chemistry of Graphene Oxide.” *Chem*, 2022, 8, 2319.
6. **Haiyue Huang**⁺, Hun Park⁺, and Jiaxing Huang*, “Self-Crosslinking of Graphene Oxide by Dehydration”, *Chem*, 2022, 8, 2432. Featured in [C&EN News](#).
7. **Haiyue Huang**, Olivia Willilams Barber, Zhilong Yu, Hun Park, Xiaobing Hu, Xinqi Chen, Chun-Hu Chen, Erica M. Hartmann* and Jiaxing Huang*, “Rub-Resistant Antibacterial Surface Conversion Layer on Stainless Steel”, *Advanced Materials Interfaces*, 2022, 2200251. Featured on [Frontispiece](#).
8. **Haiyue Huang**⁺, Hun Park⁺, Yihan Liu, and Jiaxing Huang*, “On-Mask Chemical Modulation of Respiratory Droplets”, *Matter*, 2020, 3, 1791-1810. Featured in [The Engineer](#), [Forbes](#), [NSF Research News](#).
9. **Haiyue Huang**, Chunhai Fan, Min Li, Hua-Li Nie, Fu-Bing Wang, Hui Wang, Ruilan Wang, Jianbo Xia, Xin Zheng, Xiaolei Zuo, and Jiaxing Huang*, “COVID-19: A Call for Physical Scientists and Engineers”, *ACS Nano*, 2020, 14, 3747-3754. Featured in [ACS Central Science](#), [University World News](#).
10. Zhizhi Kong, Matthias Daab, Hitomi Yano, **Haiyue Huang**, Josef Breu, Takayoshi Sasaki, SonBinh T. Nguyen* and Jiaxing Huang*, “Visualizing Transparent 2D Sheets by Fluorescence Quenching Microscopy”, *Small Methods*, 2020, 2000036C.
11. Che-Ning Yeh, **Haiyue Huang**, Alane Tarianna O. Lim, Ren-Huai Jhang, Chun-Hu Chen* and Jiaxing Huang*, “Binder-Free Graphene Oxide Doughs”, *Nature Communications*, 2019, 10, 422. Featured in [The Chemical Engineer](#), [MRS Bulletin](#).
12. Genlian Fan, **Haiyue Huang**, Zhanqiu Tan*, Dingbang Xiong, Qiang Guo, Makio Naito, Zhiqiang Li*, and Di Zhang, “Grain Refinement and Superplastic Behavior of Carbon Nanotube Reinforced Aluminum Alloy Composite Processed by Cold Rolling”, *Materials Science and Engineering: A*, 2017, 78, 537-543.
13. **Haiyue Huang**, Genlian Fan*, Zhanqiu Tan, Ding-Bang Xiong, Qiang Guo, Cuiping Guo, Zhiqiang Li*, and Di Zhang, “Superplastic Behavior of Carbon Nanotube Reinforced Aluminum Composites Fabricated by Flake Powder Metallurgy”, *Materials Science and Engineering: A*, 2017, 699, 55-61.

AWARDS

- Special Mention, *Carbon* Thesis Award 2023
- Young Researcher Award, *E-MRS* 2022
- Terminal Year Fellowship, Northwestern University 2021
- PPG Fellowship, Northwestern University 2021
- Ryan Fellowship, Northwestern University 2020
- Academic Excellence Scholarship of Shanghai Jiao Tong University 2014, 2015, 2016

MENTORING EXPERIENCE

University of California, Los Angeles | *Research Mentor*

Jan. 2023 – Present

- Supervised Ph.D students: Magic Fu, Judy Cheng, Wangbo Pan
- Supervised undergraduate students: Maximilian Florida

Northwestern University | *Research Mentor*

Sep. 2017 – Jun. 2022

- Supervised undergraduate students: Simona Fine, Lauren Bichelmeir, Isabel Nygard

Westlake University | *Visiting Scholar*

Aug. 2021 – Jun. 2022

- Supervised graduate students: Kan Liu, Jingyi Li, Yiming Sun, Dasai Ban

TEACHING EXPERIENCE

Northwestern University | *Teaching Assistant for MSE 337: Conducting Polymers*

Winter, 2020

- Responsible for holding office hours, grading assignments, and assisting with lectures
- Supervised course projects, one of which was featured in a [Northwestern news release](#)
- CTEC score for TA evaluation: 5.88/6.00

CONFERENCES PRESENTATIONS

- APS March Meeting | Oral Presentation
“Electronic Solitons and Bound States in Higher-Order Topological Graphitic Structures”
Anaheim, 2025
- APS March Meeting | Oral Presentation
“Square-Root Topological Graphene Nanoribbons Modulated Electric Field”
Minneapolis, 2024
- MRS Spring Meeting | Oral Presentation
“Self-Crosslinking of Graphene Oxide Sheets by Dehydration”
San Francisco, 2023
- E-MRS Spring Meeting | Poster Presentation
“Rub-Resistant Antibacterial Surface Conversion Layer on Stainless Steel”
Virtual, 2022
- MRS Spring Meeting | Oral Presentation
“On-Mask Chemical Modulation of Respiratory Droplets”
Virtual, 2021
- Hilliard Symposium, Northwestern University | Oral Presentation
Evanston, 2021

PATENTS AND PATENT APPLICATIONS

1. “Hybrid Surface Designs with Passive Diffusion-Limited Deposition Capabilities”
Christian John Machado, Kyoo-Chul Kenneth Park, Jiaying Huang, **Haiyue Huang**
US patent No. 12,420,906 B2
2. “Topological Qubits Based on Square-Root Graphene Nanoribbons Induced by Electric Fields”
Haiyue Huang, Prineha Narang, Mamun Sarker, Alexander Sinitskii
US provisional patent filed, No. 63/562,124
3. “Oxyhydroxide Surface Layer Grown on Stainless Steels with Leachable Copper Ions”
Jiaying Huang, **Haiyue Huang**
Disc-ID-21-05-03-001
4. “On-Mask Chemical Modulation of Respiratory Droplets”
Jiaying Huang, **Haiyue Huang**, Hun Park
US provisional patent filed, No. 63/073,977
5. “Binder-Free Graphene Oxide Doughs”
Jiaying Huang, Che-Ning Yeh, **Haiyue Huang**
US provisional patent filed, No. 62/730,848, US patent filed, No. 17/274,889

OUTREACH

- Inverse Seminar Series *2023-Present*
Organized a novel seminar format that highlights the human stories and tacit knowledge behind scientific publications, fostering broader engagement across the academic community. **See details:** [Inverse Seminars](#)
- Black Girls Code Event *Los Angeles, 2025*
Mentored high school students to explore and understand quantum science.
Explained python code languages to students
- Women in Quantum, UCLA *Los Angeles, 2024-2025*
Engaged in discussions on advances in quantum science.
- Women in Science Lunch Event and Panel Discussion, Consulate General of Finland *Los Angeles, 2025*
Networked with women scientists to promote women's leadership in STEM.