

Xing Yee Gan, Ph.D.

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[LinkedIn Profile](#)

EDUCATION

University of Pittsburgh (Pitt), Pittsburgh PA June 2015 – May 2021
Ph.D. in Chemistry GPA: 3.80/4.00
Dissertation Title: “Understanding the Emergence, Tunability, and Performance of Plasmonic Copper Selenide Semiconductor Nanoparticles”

University of Washington (UW), Seattle WA September 2011 – December 2014
B.S. (Honors) in Chemistry GPA: 3.55/4.00

RESEARCH EXPERIENCE

Post-Doctoral Research Associate, Chemical Engineering June 2021 – Present
Delia J. Milliron Group, University of Texas, Austin

- Studying the influence of surface depletion layers in plasmonic metal oxide semiconductor nanocrystals towards photocatalytic applications
- Proficient in transmission and electron microscopy, FTIR, and UV-Vis-NIR absorption, and nuclear magnetic resonance spectroscopies.
- Experienced in air-free Schlenk line chemistry and handling N₂ atmosphere glovebox

Graduate Student Research Assistant, Chemistry June 2015 – May 2021
Jill E. Millstone Group, University of Pittsburgh

- Proficient in transmission and scanning electron microscopy, UV-Vis-NIR absorption, nuclear magnetic resonance (solid and liquid state), X-ray photoelectron, and Fourier transformed infrared spectroscopies, powder X-ray diffraction, Raman microscopy, inductively-coupled plasma optical emission spectrometry, and scanning transmission electron microscopy X-ray energy dispersive scattering technique.
- Experienced in air-free Schlenk line chemistry and handling N₂ atmosphere glovebox
- Formally trained post docs and graduate students how to operate transmission electron microscopes and using aqua regia safely
- Mentored graduate students and undergraduate research assistants
- Managed chemical inventory, group website, glovebox, and aqua regia hood

Undergraduate Research Assistant October 2012 – April 2015
Daniel R. Gamelin Group, University of Washington, Seattle

AWARDS

- C&EN Chemistry in Pictures November 2020 winner – “[Nano Pineapples](#)” November 2020
- Chemical-Biological Defense Science and Technology Student Travel Award, Cincinnati OH November 2019
- Andrew Mellon Pre-Doctoral Fellowship, Pitt 2019 – 2020
- Pittsburgh Quantum Institute Veterans Poster Award October 2018
- Pitt Graduate Excellence Fellowship 2018 – 2019
- Gordon Research Conference Outstanding Poster Presentations, Hong Kong SAR Summer 2017
- Pittsburgh Quantum Institute Graduate Research Fellowship, Pitt Summer 2017
- Pittsburgh Quantum Institute 2017 Poster Award April 2017
- Dietrich School of Arts and Sciences Graduate Fellowship, Pitt 2017
- Pittsburgh Quantum Institute Science 2016 Poster Award November 2016

- Mary E. Warga Predoctoral Fellowship, Pitt Summer 2016
- Mary Gates Research Endowment, UW Spring – Autumn 2014
- Outstanding Student in Inorganic Chemistry, UW Department of Chemistry 2014

PUBLICATIONS ([Google Scholar Profile](#))

10. Klan, J. M., Harper, D. K., Ruffley, J. P., **Gan, X. Y.**, Millstone, J. E., Johnson, J. K., “A Theoretical Study of the Impact of Vacancies and Disorder on the Electronic Properties of Cu_{2-x}Se ” *J. Phys. Chem. C*, **2021**, 125, 12324.
9. **Gan, X. Y.**, Sen, R., Millstone, J. E., “Connecting Cation Exchange and Metal Deposition Outcomes via Hume-Rothery-like Design Rules Using Copper Selenide Nanoparticles” *J. Am. Chem. Soc.* **2021**, 143, 8137.
8. **Gan, X. Y.**, Crawford, S. E., Eikey, E. A., Sen, R., Killinger, J. R., Millstone, J. E., "Optoelectronic Impacts on Particle Size in Water-Dispersible Plasmonic Copper Selenide Nanoparticles" *J. Phys. Chem. C* **2020**, 124,4747.
7. Eikey, E. A., **Gan, X. Y.**, Kaseman, D.C., Murphey, C. G. E., Crawford, S. C., Johnston, K. A., Yazdi, S., Millstone, J. E., "Efficient Control of Atom Arrangement in Ternary Metal Chalcogenide Nanoparticles Using Precursor Oxidation State" *Chem. Mater.* **2020**, 32, 1322.
6. Crawford, S. E., **Gan, X. Y.**, Lemaire, P. C. K., Millstone, J. E., Baltrus, J. P., Ohodnicki Jr., P. R., “Zinc-Adeninate Metal-Organic Framework: A Versatile Photoluminescent Sensor for Rare Earth Elements in Aqueous Systems,” *ACS Sens.* **2019**, 4, 1986.
5. **Gan, X. Y.**, Keller, E. L., Warkentin, C. L., Crawford, S. E., Frontiera, R. R., Millstone, J. E., “Plasmon-Enhanced Chemical Conversion Using Copper Selenide Nanoparticles,” *Nano Lett.* **2019**, 19, 2384.
4. Luo, T.-Y., Liu, C., **Gan, X. Y.**, Muldoon, P. F., Diemler, N. A., Millstone, J. E., Rosi, N. L., “Multivariate Stratified Metal-Organic Frameworks: Diversification using Domain Building Blocks,” *J. Am. Chem. Soc.* **2019**, 141, 2161.
3. Kaseman, D. C., Gamble Jarvi, A., **Gan, X. Y.**, Saxena, S., Millstone, J. E., “Evolution of Surface Copper(II) Environments in Cu_{2-x}Se Nanoparticles,” *Chem. Mater.* **2018**, 30, 7313.
2. Johnston, K. A., Stabryla, L. M., Smith, A. M., **Gan, X. Y.**, Gilbertson, L. M., Millstone, J. E., “Impacts on Broth Chemistry on Silver Ion Release, Surface Chemistry Composition, and Bacteria Cytotoxicity of Silver Nanoparticles,” *Environ. Sci: Nano*, **2018**, 5, 304.
1. Marbella, L. E.*, **Gan, X. Y.***, Kaseman, D. C., Millstone, J. E., “Correlating Carrier Density and Emergent Plasmonic Features in Cu_{2-x}Se Nanoparticles,” *Nano Lett.*, **2017**, 17, 2414. *These authors contributed equally

INVITED ORAL PRESENTATIONS

- **Pitt undergraduate analytical chemistry class 2021**, Guest Lecture, April 2021, Pittsburgh PA
- **Brashear High School**, Inaugural Speaker for Seminars at High School, Pitt Alliance for Diversity in Science and Engineering, February 2021, Pittsburgh PA
- **Pitt undergraduate chemistry instrumental analysis class 2020**, Guest Lecture, April 2020, Pittsburgh PA

SELECTED ORAL PRESENTATIONS

- **Chemical-Biological Defense Science and Technology**, November 2019, Cincinnati OH
- **Defense Threat Reduction Agency Annual Review Meeting**, July 2019, Pittsburgh PA
- **Gordon Research Seminar, Colloidal Semiconductor Nanocrystals 2018**, July 2018, Smithfield RI
- **Ohio Inorganic Weekend 2017**, November 2017, Columbus OH
- **Gordon Research Conference, Plasmonically Powered Processes 2017**, June 2017, Hong Kong SAR
- **Defense Threat Reduction Agency Annual Review Meeting**, March 2017, Pittsburgh PA

SELECTED POSTER PRESENTATIONS

- **Pittsburgh-Cleveland Catalysis Society 2019**, August 2019, Pittsburgh PA
- **International Conference in Photochemistry 2019**, July 2019, Boulder CO
- **Pittsburgh Quantum Institute 2019**, April 2019, Pittsburgh PA

- **Pittsburgh Quantum Institute Science 2018**, October 2018, Pittsburgh PA
- **American Chemical Society Fall National Meeting 2018**, August 2018, Boston MA
- **Gordon Research Conference, Colloidal Semiconductor Nanocrystals 2018**, July 2018, Smithfield RI
- **Gordon Research Seminar, Colloidal Semiconductor Nanocrystals 2018**, July 2018, Smithfield RI
- **Pittsburgh Quantum Institute 2018**, April 2018, Pittsburgh PA
- **Chemical, Biological Defense, Science and Technology 2017**, November 2017, Long Beach CA
- **Pittsburgh Quantum Institute Science 2017**, October 2017, Pittsburgh PA
- **American Chemical Society Fall National Meeting 2017**, August 2017, Washington DC
- **Gordon Research Conference, Plasmonically Powered Processes 2017**, June 2017, Hong Kong SAR
- **Adventures in Enhanced Spectroscopies 2017**, May 2017, Pittsburgh PA
- **Pittsburgh Quantum Institute 2017**, April 2017, Pittsburgh PA
- **Pittsburgh Quantum Institute Science 2016**, October 2016, Pittsburgh PA

COLLOQUIA AND SYMPOSIA

- **Chair**, Colloidal Semiconductor Nanocrystals Gordon Research Seminar 2022, July 2018 – Present, Les Diablerets, Switzerland; “*Light-Matter Interactions in Semiconductor Nanomaterials*”
- **Symposium Organizer and President**, American Chemical Society Fall National Meeting, August 2018, Boston MA; “*Enabling Spectroscopies for Nanomaterial Applications: From Energy Conversion to Therapeutics*”

SERVICE & OUTREACH

Peer Reviewer for American Chemical Society

August 2020 – Present

- Provided critical feedback for 7 articles submitted to ACS Nano and Nano Letters.

Poster Judge

October 2019 – October 2020

Pittsburgh Quantum Institute, Pittsburgh PA

- Judged 7 posters prepared and presented by graduate students and postdoctorate associates from various disciplines including chemistry, physics, and chemical engineering

Peer Mentor for Incoming First-Year Graduate Students

August 2017 – Present

Department of Chemistry, University of Pittsburgh, Pittsburgh PA

- Mentored 2 incoming first-year domestic and/or international graduate students each year
- Provided guidance in selecting classes, research groups, teaching, and living in Pittsburgh or the US

Graduate Teaching Assistant

August 2015 – May 2016

Department of Chemistry, University of Pittsburgh, Pittsburgh PA

- Taught 10 General Chemistry recitation sections for Chemistry and Engineering majors

Graduate Teaching Associate

January 2015 – March 2015

Department of Chemistry, University of Washington, Seattle WA

- Provided general, organic, inorganic and physical chemistry tutoring at the UW Chemistry study center

Science Interpreter, Pacific Science Center, Seattle WA

July 2013 – March 2015

- Provided explanations behind exhibits and demonstrations about spectral lines in stars
- Provided shadowing experience at different floor positions for new staff/volunteers