Kristine Q. Loh

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Academic Appointments

Swarthmore College — Swarthmore, PA
Visiting Assistant Professor in Engineering — August 2025 to Present

Augsburg University — Minneapolis, MN
Adjunct Instructor in Physics — August 2024 to May 2025

Education

University of Minnesota – Twin Cities (UMN) — Minneapolis, MN
Doctor of Philosophy, Chemical Engineering — June 2025
National Science Foundation Graduate Research Fellow
College of Science and Engineering Fellow
Dissertation Title: Nontoxic Nanomaterials for Luminescent Solar Concentrators in Agrivoltaic Systems
Advisors: Profs. Vivian Ferry (Chemical Eng. & Materials Science) and Uwe Kortshagen (Mechanical Eng.)

Drexel University, Pennoni Honors Program, Summa Cum Laude — Philadelphia, PA
Accelerated Master of Science in Materials Science and Engineering — June 2020
Thesis Title: Optimization of Photodetection Analysis of MXene Thin Films
Advisors: Profs. Jason Baxter (Chemical Eng.) and Yury Gogotsi (Materials Sci. and Eng.)
Bachelor of Science in Chemical Engineering
Certificate in Technical Communication and Publishing

Ruhr-Universität Bochum — Bochum, Germany
Exchange Undergraduate Student in Mechanical Engineering — April to June 2018

Teaching Experience

Swarthmore College

ENGR 82: Fundamentals of Materials Engineering [~20 students] — Spring 2026
Lecture and Lab Instructor
Junior/Senior level elective course. I created new lectures and labs to teach fundamental materials engineering concepts. Labs included x-ray diffractometry, metalworking, and materials design/selection. Lectures included in-class group exercises, structured debates, and final project presentations.

ENGR 06: Introduction to Mechanics I [~100 students] — Spring 2026
Lab Instructor
Freshman level core course. I updated labs to further align with lecture content and focus on design thinking. I provided detailed feedback in lab reports and memos to all lab groups.

ENGR 41: Thermo-Fluid Mechanics [~20 students] — Fall 2025
Lecture Instructor
Junior/Senior level elective course that teaches thermodynamics in the first half and fluid mechanics in the second half. I re-designed the course to align labs with lectures and introduced new labs to teach the ideal gas law and heat engines. I also added lectures to teach real fluid equations of state and related properties.

Augsburg University

SCI 123: The Science of Food and Cooking [~25 students] — Fall 2024 and Spring 2025
Lecture and Lab Instructor
Outreach course for non-STEM students. I taught weekly lectures and cooking labs. I also designed and implemented a new lab on meringues to teach foam structures.

PHY 119: Physics for the Fine Arts [~25 students] Spring 2023
Co-Instructor with Prof. Moumita Dasgupta
Outreach course for non-STEM students. I taught three lectures and assisted with weekly labs as part of the Preparing Future Faculty Program. I also designed and implemented a new lab on stage design to teach normal force, resulting in an ASEE conference paper.

University of Minnesota

MATS 4400: Senior Design Project [~30 students] Spring 2024
Teaching Assistant for Lead Instructor Prof. Vivian Ferry
Senior capstone course for Materials Science and Engineering majors. I mentored four industry-partnered design teams and provided detailed feedback on major reports and presentations.

CHEN 3401W: Junior Chemical Engineering Lab [~30 students] Spring 2023
Teaching Assistant for Lead Instructor Prof. Aditya Bhan
Junior level core lab course. I assisted six teams of students in running weekly pilot plant experiments. I utilized the Socratic method of asking and answering questions to guide student troubleshooting, resulting in two Outstanding TA Awards (one student-nominated and one faculty-nominated).

CHEN 3102: Reaction Kinetics [~100 students] Spring 2021
Teaching Assistant for Lead Instructor Prof. Matthew Neurock
Sophomore/Junior level core course. I graded weekly homework assignments, managed the Canvas course page, held office hours, and proctored extended exams for students with accommodations. I received a departmental Outstanding TA Award (faculty-nominated).

RESEARCH POSITIONS

Ferry and Kortshagen Research Groups Minneapolis, MN
Graduate Research Fellow January 2021 to June 2025

Nanomaterials for Energy Applications and Technology (NEAT) Lab Philadelphia, PA
Master's/Undergraduate Research Assistant April 2017 to June 2020
Students Tackling Advanced Research (STAR) Scholar and Frances Velay Fellow June to August 2016

Emmy Noether Research Group Bochum, Germany
Independent Research Project April 2018 to June 2018

RESEARCH MENTEES

Name	Location	Major	Dates	Current Role
Mia Daniel-Morales (Velay)	Swat.	Engr.	Summer '26	Undergraduate
Imani Githure	Swat.	Phys. and Chem.		
Isaiah Jay Moreno	Swat.	Engr.		
Osmar Jimenez Ventura (RR)	Swat.	Engr.		
Mackenzie Roberts	Swat.	Engr.		
Ian Forehand	Swat.	Engr.	Spring '26	Undergraduate
Arina Garifullina	Swat.	Engr.		
Karin Anderson (UROP)	UMN	Math and CS	Spring '25	Engineer at ALLETE
Masoumeh Amirifard	UMN	Mech. Engr.	2023 – 2025	PhD Student, UMN
Aquarina Hoanca (UROP)	UMN	Chem. Engr.	2023 – 2025	Undergraduate
Andy Chung (REU)	UMN	Mech. Engr.	Summer '23	Energy Innovator Fellow, PA Public Utility Commission
Adriana Chapez (REU)	UMN	Mech. Engr.	Summer '22	Undergraduate
Noura Rayes (REU)	UMN	Mech. Engr.	Summer '21	PhD Student, Penn State

* RR: Richard Rubin, UROP: Undergraduate Research Opportunities Program, REU: Research Experiences for Undergraduates

PEER-REVIEWED JOURNAL PUBLICATIONS

1. **K.Q. Loh**, N.J. Eylands, V.E. Ferry, U.R. Kortshagen, "Spectral Engineering with Quantum Dot Films for Enhanced Crop Growth." *ACS Applied Optical Materials*, 3(10) 2251–2256 (2025). DOI: 10.1021/acsaom.5c00338
2. **K. Q. Loh**, B. L. Stottrup, "Ten Years of the Science of Food and Cooking Course at Augsburg University," (In Review at *International Journal of Molecular and Physical Gastronomy*).
3. T. J. Cameron, B. Klause, **K.Q. Loh**, U.R. Kortshagen, "Aluminum-Silica Core-Shell Nanoparticles *via* Nonthermal Plasma Synthesis." *Nanomaterials*, 15(3), 237 (2025). DOI: 10.3390/nano15030237
4. **K.Q. Loh,** K. Harbick, N.J. Eylands, U.R. Kortshagen, V.E. Ferry, "Design Guidelines for Luminescent Solar Concentrator Greenhouses in the United States." *Advanced Sustainable Systems*, 2400749 (2024). DOI: 10.1002/adsu.202400749
5. **K.Q. Loh,** H. P. Andaraarachchi, V.E. Ferry, U.R. Kortshagen, "Photoluminescent Si/SiO_2 Core/shell Quantum Dots Prepared via High-Pressure Water Vapor Annealing for Solar Concentrators, Luminescent Devices, and Bioimaging." *ACS Applied Nano Materials*, 6(7) 6444-6453 (2023). DOI: 10.1021/acsanm.3c01130

PEER-REVIEWED CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. **K.Q. Loh**, N.J. Eylands, V.E. Ferry, U.R. Kortshagen, "Enhancing Lettuce Yields using Quantum Dot Films," *AgriVoltaics Conference Proceedings, 4*, Freiburg, Germany. (2025). DOI: 10.52825/agripv.v4i.2827
2. **K.Q. Loh,** K. Harbick, N.J. Eylands, U.R. Kortshagen, V.E. Ferry, "Luminescent Solar Concentrator Greenhouses for Concurrent Energy Generation and Lettuce Production in the U.S.," *AgriVoltaics Conference Proceedings, 3*, Denver, CO, U.S.A. (2024). DOI: 10.52825/agripv.v3i.1376
3. **K.Q. Loh,** M. Dasgupta, "The Forces of Stage Design: An Interdisciplinary Approach to Teaching Normal Force, Frictional Force, and Design Ethics for non-STEM Majors" *Proceedings of the ASEE Midwest Section Conference*, Lincoln, NE, U.S.A. (2023). DOI: 10.18260/1-2-660.1137-46369

SELECTED CONFERENCE, SYMPOSIUM, AND SEMINAR PRESENTATIONS

Denotes undergraduate research mentee

1. **K.Q. Loh** (June 2026). *It Takes a Village: Finding your Neighborhoods*. Invited Presentation. Society of Women Engineers Academia Working Group Women in Belonging Symposium. Remote Presentation.
2. **K.Q. Loh** (January 2026). *Luminescent Solar Concentrators for Dual Food and Energy Production Systems*. Invited Seminar. Drexel University Chemical and Biological Engineering Department. Philadelphia, PA.
3. A. Hoanca, **K. Q. Loh**, U.R. Kortshagen, V.E. Ferry, (March 2025). *Effects of Greenhouse Building Materials on the Energy Consumption of Cold Climate Solar Greenhouses*. Poster and Oral Presentations. 2025 SWE Local Conference. Milwaukee, WI. **Received 2nd Place Collegiate Competition Prize**.
4. **K.Q. Loh,** K. Harbick, N.J. Eylands, U.R. Kortshagen, V.E. Ferry, (April 2024). *Luminescent Solar Concentrator Greenhouses for Concurrent Energy Generation and Lettuce Production in The United States*. Oral Presentation. 2024 Materials Research Society Spring Meeting & Exhibit. Seattle, WA.
5. **K.Q. Loh,** K. Harbick, N.J. Eylands, U.R. Kortshagen, V.E. Ferry, (April 2024). *Solar-Powered Greenhouses for the Production of Lettuce and Clean Energy in the United States*. Lightning Talk. 2024 UMN Sustainability Symposium. St. Paul, MN. **Received Graduate Student Lightning Talk Award**.
6. A. Chapa, **K. Q. Loh,** U.R. Kortshagen, V.E. Ferry, (April 2023). *Improving the dispersion of silicon/silicon dioxide quantum dots.* Poster Presentation. 2023 Materials Research Society Spring Meeting & Exhibit. San Francisco, CA.
7. **K. Q. Loh,** V.E. Ferry, U.R. Kortshagen, (April 2023). *Tunable, high intensity photoluminescence from Si/SiO_2 core/shell quantum dots* via *high-pressure water vapor annealing.* Oral Presentation. 2023 Materials Research Society Spring Meeting & Exhibit. San Francisco, CA.

HONORS, GRANTS, AND AWARDS

UMN Departmental Inclusion, Diversity, Equity, Action, and Service (IDEAS) Award	February 2025
President's Student Leadership and Service Award	March 2024
Community of Scholars Program (COSP) Travel Grant ($1000)	August 2023
Letters to a Pre-Scientist (LPS) Certificate of Appreciation for Excellent Explanations	July 2023
CEMS (Departmental) Teaching Assistant (TA) Award	May 2023
Council of Graduate Students (COGS) Outstanding TA Award	April 2023
COGS Conference Travel Grant ($650)	April 2023
CEMS Women+ Group Travel Grant ($750)	April 2023
CEMS Outstanding TA Award	October 2021
Society of Women Engineers (SWE) Outstanding Collegiate Member	September 2021
National Science Foundation Graduate Research Fellowship (3 years, $138,000 total)	March 2021
College of Science and Engineering Fellowship (2 years, $50,000 total)	February 2020
Drexel University College of Engineering (CoE) Undergraduate Commencement Speaker	June 2020
Drexel University CoE Outstanding Undergraduate Student Award	January 2020
Tau Beta Pi, Engineering Honor Society, Drexel University	December 2019
Chemical and Biological Engineering (CBE) Undergraduate Student Achievement Award	November 2019
CBE Undergraduate Student Service Award	November 2019
SWE Guiding Star Award (1 of 7 nationally)	February 2019
Supernova Undergraduate Research Fellow, Drexel University	September 2017
SWE Future Leader (1 of 31 internationally)	June 2017
Kappa Theta Epsilon, Co-op Honor Society, Drexel University	June 2017
First Place Poster Prize in Life Sciences, SASE NE Regional Conference	May 2017
Inaugural Frances Velay Fellow (1 of 8 students), Drexel University ($3,500)	June 2016
National Achievement Full Tuition Scholarship (all years)	September 2015

INDUSTRY EXPERIENCE

Crazy Aaron's Enterprises — Norristown, PA
Materials & Process Engineer Co-op — April 2019 to September 2019
- Tripled production of new product line and served as subject matter expert on business merger
- Authored company-wide lean documentation to reduce defects and to highlight safety precautions
- Trained and supervised 6 operators on new techniques, products, and process improvements

Johnson & Johnson Consumer, Inc. — Fort Washington, PA
R&D Analytical Chemistry Co-op — September 2017 to March 2018
Advisor: Dr. Michael Breslav
- Developed active pharmaceutical ingredient (API) extraction tests for chromatographic analysis
- Designed and conducted heat and humidity stress experiments on API degradation products
- Supported 5 analytical scientists through diluent, mobile phase, and sample preparation

Noramco, Inc. — Wilmington, DE
Process Engineering Co-op — September 2016 to August 2017
- Created 5 startup procedures to improve process efficiency and prevent salt formation
- Contributed to 2 new products by interfacing with operators and developing technical documentation
- Updated and refined batch records for process improvement savings of up to $200,000 per campaign

SELECTED SERVICE, LEADERSHIP POSITIONS, AND PANEL ENGAGEMENTS

Community Building

UMN Graduate Labor Union – United Electric Local 1105
Chemical and Mechanical Engineering Graduate Student Organizer — January 2023 to June 2025

UMN Graduate Student Committee (GSC) – Departmental Advocacy and Resource-Sharing Group
FY-2020 Cohort Representative — September 2022 to June 2025

UMN CEMS Women+ Group
Undergraduate Coordinator (organize one UG/G social event per semester) July 2022 to August 2024
General Coordinator (organize one event per semester) September 2020 to June 2021

Community Engagement and K-12 Outreach

Skype a Scientist
Chemical Engineering/Materials Science Expert (~10 classrooms/year) June 2025 to Present

Letters to a Pre-Scientist
STEM Pen Pal July 2022 to Present

Strath Haven Middle School Synergy Club
Guest Expert and After School Activity Lead September 2025

Philadelphia Sun Day
Junior Solar Sprint Volunteer September 2025

UMN ASM Camp
Photoresistor Co-Instructor and Activity Developer July 2024

UMN Eureka! Camp
Polarized Light Art Co-Instructor and Activity Developer July 2023, 2024

UMN SciPride
Solar Cell Activity Co-Lead July 2023, 2024

UMN Science for All
Webmaster (sfa.cems.umn.edu) July 2022 to August 2024
General Volunteer (volunteer monthly at local middle schools) July 2021 to June 2025

UMN CEMS Students Organizing Against Racism (SOAR)
Outreach Team Volunteer and Video Script Writer (Videos 1, 2, and 3) February 2022 to July 2023

Pink Space Theory
STEM Panel Organizer and Fundraiser, Webinar Moderator, and Grant Writer June 2020 to July 2022

Drexel Introduce a Girl to Engineering Day (~200 community members)
Co-organizer February 2020

Departmental and College Service

UMN CEMS Department Head Search – Graduate Students and Postdoctoral Scholars
Committee Lead November 2023

Drexel University College of Engineering
Chair of Joint One-Time Undergraduate Faculty Evaluation Committee September 2019 to January 2020
Recruitment and Outreach Assistant June 2018 to June 2020

Panel Engagements

SWE x oSTEM Queer Experiences in Research Panel February 2026
UMN President's Emerging Scholars Program Graduate Student Panel July 2024
Drexel Velay Fellows Mentorship Series July/August 2021, 2022, 2023, 2024
UMN CEMS Advisor Selection Panel September 2021, 2023
UMN CEMS NSF Graduate Fellowship Panel September 2021, 2022
UMN Confronting Anti-Asian Racism in CEMS Panel April 2021

Reviewer

Advanced Optical Materials Journal Article
American Society for Engineering Education Conference Abstracts: Pre-College Education
Drexel Goldwater Scholarship Applications
Drexel STAR Scholars Applications

PROFESSIONAL AFFILIATIONS AND LEADERSHIP POSITIONS

American Society for Engineering Education (ASEE)
Member — June 2025 to Present

Sigma Xi
Member — April 2025 to Present

Materials Research Society (MRS)
Member — April 2023 to Present
Symposium Assistant — April 2024

Society of Women Engineers (SWE)
Swarthmore College
Co-Faculty Advisor — September 2025 to Present
Societal
Awards Committee Rising Collegiate Star Award Coordinator — August 2023 to Present
Awards and Scholarships Judge (various award cycles) — March 2021 to Present
Culture & Heritage Lead for Asian Connections Affinity Group — July 2022 to July 2023
Community Lead for Asian Connections Affinity Group — February 2020 to July 2022
SWENext High School "Day in the Life" Reporter — February 2020 to July 2022
UMN
GradSWE Committee Chair — March 2021 to July 2022
Drexel University
Membership Director — January 2019 to December 2019
President — January 2018 to December 2018
Outreach Director — December 2015 to December 2017

Society of Asian Scientists and Engineers (SASE)
Swarthmore College Co-Faculty Advisor — May 2026 to Present
Drexel Chapter Events Coordinator — June 2018 to June 2019
PR Committee Researcher — July 2016 to June 2018

American Institute of Chemical Engineers
Education Division Communications Committee Member and X Lead — December 2022 to March 2025
Minority Affairs Committee Communications Team Member and Newsletter Lead — April 2020 to July 2021

PROFESSIONAL DEVELOPMENT AND CERTIFICATE PROGRAMS

NETI-1 Course Design and Student Engagement Workshop — June 2026
Teaching in Globally Diverse Classes Certificate — January 2025
Northeastern Future Faculty Workshop — July 2024
UMN Teaching Faculty Job Preparation Program — July 2024
SWE Neuroinclusion Training Program — June 2024
UMN Teaching for Student Well-being Program — May 2024
UMN Equity and Diversity Certificate — June 2023
UMN Preparing Future Faculty Program — May 2023
The Inclusive STEM Teaching Project — November 2022
UMN Teaching Assistant Professional Development (TAPD) Program — August 2022
Institute on Teaching and Mentoring Participant — April 2021