Kangying Liu

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EDUCATION

Ph.D. in Chemistry *August 2019 - Present*
Purdue University, West Lafayette, IN

B.S. in Chemistry, *summa cum laude* *January 2016 - May 2019*
Beloit College, Beloit, WI
Graduated with Departmental Honors

AWARDS AND HONORS

- John H. Nair Award, Beloit College (2019).
- Phi Beta Kappa (2019).
- Phi Sigma Iota (2019).
- American Chemical Society Award for Achievement in Organic Chemistry, Beloit College (2017).
- Dean's List, Beloit College (2016-2019).
- Presidential Scholarship, Beloit College (2016-2019).

RESEARCH EXPERIENCE

Undergraduate Research Assistant
University of Southern California, Los Angeles, CA *May 2018 - August 2018*
Research Advisor: Dr. Barry Thompson
Project: Prepare Amide-Functionalized Conjugated Polymers via Direct Arylation Polymerization (DArP)
Description: This project involved the synthesis of a series of monomers and focused on the design, synthesis, and characterization of electroactive organic conjugated polymers. Some amide-substituted thiophene monomers were successfully prepared and used in the synthesis of amide-functionalized conjugated polymers via Direct Arylation Polymerization (DArP) that can be processed using green, sustainable solvents.

Undergraduate Research Assistant
Beloit College, Beloit, WI *August 2018 - May 2019*
Research Advisor: Dr. George Lisensky
Project: Synthesis of Zinc Copper Indium Sulfide Quantum Dot Nanoparticles
Description: This project aimed to develop the nanoparticle $Zn_{2x}Cu_{1-x}In_{1-x}S_2$, as a promising and safer alternative to lead- and cadmium-containing quantum dots. The $Zn_{2x}Cu_{1-x}In_{1-x}S_2$ quantum dots were prepared in a one-pot synthesis without an inert atmosphere. This project also investigated how the color, visible absorption band edge, and photoluminescence peak wavelength depend on the size of the particle.

PUBLICATIONS

- Ye, L.; Pankow, R. M.; Horikawa, M.; Melenbrink, E. L.; **Liu, K.**; Thompson, B. C. "Green Solvent Processed Amide-Functionalized Conjugated Polymers Prepared via Direct Arylation Polymerization (DArP)," *Macromolecules* **2019**, *52*, 9383-9388.
- Lisensky, G. C.; McFarland-Porter, R.; Paquin, W.; **Liu, K.** "Synthesis and Analysis of Zinc Copper Indium Sulfide Quantum Dot Nanoparticles," *J. Chem. Educ.* **2020**, *97*, 806-812.

TEACHING EXPERIENCE

Graduate Teaching Assistant for General Chemistry

Purdue University, West Lafayette, IN *August 2019 - May 2020*

Teach recitation sessions (class size: 24 students) by explaining fundamental general chemistry concepts and homework exercises; hold office hours; guide general chemistry laboratory sessions by demonstrating procedures; grade students' lab reports.

Undergraduate Teaching Assistant for Organic Chemistry

Beloit College, Beloit, WI *August 2017 - May 2019*

Guide undergraduate organic chemistry laboratory sessions (class size: 24 students) by demonstrating procedures, facilitating the operations of IR, NMR instruments; hold TA help sessions and grade students' lab reports.

SKILLS

- **Chemistry Laboratory Techniques:** Liquid-liquid extraction, Recrystallization, Distillation, Filtration, Melting Point Determination, Thin-layer Chromatography, Flash Column Chromatography, Titration, Solvent Evaporation.
- **Instrumentation:** Nuclear Magnetic Resonance Spectrometer (NMR), Fourier Transformed Infrared Spectrometer (FTIR), UV-Vis Spectrometer, Atomic Absorption Spectrometer (AA), Fluorescence Spectrometer, Gas Chromatograph (GC), Gel Permeation Chromatograph (GPC), Powder X-Ray Diffraction Spectrometer (XRD).
- **Languages:** English (proficient), Chinese (native speaker), Japanese (upper-intermediate).