

Md Al Amin

University of Louisville

Department of Chemistry

2320 S Brook St, Louisville, KY 40208

Phone number: (336) 255 9719

Email: mdalaminsust@gmail.com or m0alam08@louisville.edu

Research Interest

My research focuses on the development of analytical methods for isolating and measuring the photothermal and hot charge carrier effects in order to advance our understanding of the underlying mechanisms for a variety of plasmon-assisted electrochemical applications, including energy storage and biological ones.

Education

- **University of Louisville**, Kentucky, United States **2020 - Present**
Ph.D., Analytical Chemistry
 - **University of Louisville**, Kentucky, United States **2020 – 2023**
MS., Analytical Chemistry
 - **North Carolina A&T State University**, North Carolina, United States **2018 - 2020**
MS., Nanoengineering
 - **Shahjalal University of Science and Technology**, Sylhet, Bangladesh **2009 - 2011**
MS., Physical Chemistry
 - **Shahjalal University of Science and Technology**, Sylhet, Bangladesh **2003 - 2007**
B.Sc ., Chemistry
-

Professional Experience

- Graduate Teaching Assistant **2020 - Present**
Department of Chemistry
University of Louisville, Kentucky, United States
Advisor: Dr. Andrew James Wilson
- Graduate Research Assistant **2018 - 2020**
Department of Nanoengineering
North Carolina A&T State University, North Carolina, United States
Advisor: Dr. Lifeng Zhang

▪ Research Assistant

2012 - 2018

*Department of
Chemistry Shahjalal
University of Science
and Technology,
Sylhet, Bangladesh*
Advisor: Dr. Nur Uddin Ahamad

Publications

1. **Al-Amin, M.**, Hemmer, V.J., Joshi, B.P., Fogelman, K., Wilson, G. A. Quantification and description of photothermal heating effects in plasmon-assisted electrochemistry. *Communication Chemistry*, 7, 70 (2024)
 2. Ahamad, U. N., **Al-Amin, M.**, Ianoul, A. (2013). Distance Dependent Surface Enhanced Raman and Fluorescence by Supported 2D Assembly of Plasmonic Metal Nanoparticles. *Asian Journal of Chemistry*, 25(16), 9226-9232.
 3. Ahamad, U. N., **Al-Amin, M.**, Ianoul, A. (2014). A Simple Approach to Engineer SERS Substrates and Plasmonic Thin Film. *Journal of Nanoparticles*, 25(16), Article ID 602385.
 4. **Al-Amin, M.**, Alam, J. (2015). Synthesis and Characterization of Cobalt Nanoparticles Using Poly(vinyl pyrrolidone) and Sodium Dodecyl Sulphate. *Asian Journal of Chemistry*, 27(9), 3407-9410.
 5. Ahamad, U. N., Ianoul, A., **Al-Amin, M.** (2018). Fabrication of 2D and 3D Architectures with Silver Nanostructures Building Blocks and Studying Their Refractive Index Sensitivity. *Plasmonics*, 13, 91-97.
 6. **Al-Amin, M.**, Islam, U.A.S., Shibly, A.S, Iffat., S. (2023). Comparative Review on the Aqueous Zinc-Ion Batteries (AZIBs) and Flexible Zinc-Ion Batteries (FZIBs). *Nanomaterials*, 12(2), 3997.
-

Book Chapter

Islam, S., Khanam, M., **Al-Amin, M.**, Ahmed, M.S., Khalil, F., Rabbani, M.M., Islam, T.M., Jamil A.R.M. (2023). Porous Hybrid Electrode Materials for High Energy Density Li-Ion and Li-S Batteries. In: Ezema, F.I., Lokhande, C.D., Lokhande, A.C. (eds) Chemically Deposited Metal

Projects

1. **Al-Amin, M.**(2020). Electrospun Carbon Nanofiber Supported Zero Valent Iron Nanoparticles (nZVI@ECNFs) for Heavy Metals Remediation in Ground and Wastewater. *North Carolina A&T State University*.
 2. **Al-Amin, M.** (2011). Synthesis and Characterization of LaFeO₃ and LaCrO₃. *Shahjalal University of Science and Technology*.
 3. **Al-Amin, M.** (2008). Analysis and Treatment of Textile Wastewater. *Shahjalal University of Science and Technology*.
-

Awards and Scholarships

- Graduate Teaching Assistantship Scholarship, *University of Louisville*, Kentucky, USA
2020- Present
 - Graduate Research Assistantship Scholarship, *N C A&T State University*, North Carolina, USA
2018-2020
-

Conference Presentation

- **Al-Amin, M.,** Wilson, J.A. (2023, March 20-23) Isolation and Quantification of Photothermal Heating in Plasmon-Enhanced Electrochemistry [Poster Presentation]. *GSRRC Spring 2023*, Louisville, KY, USA
 - **Al-Amin, M.,** Wilson, J.A. (2024, March 17-21) Understanding the origin and effect of local heating in plasmon-assisted electrochemistry [Oral Presentation-Accepted]. *ACS Spring 2024*, New Orleans, LA, USA
-

Research Skills

- UV-vis spectroscopy analysis
- Transmission Electron Microscopy analysis
- Differential scanning calorimetry analysis
- Infrared spectroscopy analysis
- Scanning electron microscopy analysis
- Cyclic Voltammetric analysis

- Electrochemical Impedance analysis
-

Memberships of Professional Society

1. American Chemical Society
-

Leadership

- Vice President, Chemistry Graduate Student Association, University of Louisville, 2022-2023, Louisville, KY
 - Event Coordinator, International Student Council, University of Louisville, 2022-2023, Louisville, KY
-

Teaching Experience

University of Louisville

- **Chemistry 202**, Introduction to Chemistry **Fall 2020-Fall 2024**

Duties: Recitation, Class Lecture, Grading