

MAWULI DEGBEVI

[LinkedIn](#) | [Google Scholar](#) | Email: mdegbevi26@gmail.com | Mobile: (574) 413-5770 | Open to relocation

EDUCATION

University of Notre Dame Ph.D., Chemistry Advisor: Dr. Emily Y. Tsui Thesis: Modulating colloidal semiconductor quantum dot surface ligand dissociation equilibria and reduction potentials for photocatalytic applications	Notre Dame, IN 08/2021 – Present
Kwame Nkrumah University of Science and Technology BSc., Chemistry (Hons.) Advisor: Dr. Nathaniel O. Boadi Thesis: Synthesis and characterization of nickel–sulfide (NiS) thin films from Nickel–thiourea complex using spin coating method	Kumasi, Ghana 09/2015 – 06/2019

TEACHING & WORKING EXPERIENCE

Graduate Research Assistant University of Notre Dame	08/2021 – Present Notre Dame, IN
<ul style="list-style-type: none">Designed and executed complex experimental setups and extensive material characterization using powder and single crystal XRD, TEM, ICP-OES, NMR, FT-IR, UV-Vis, Raman, fluorescence spectroscopy, electrochemistry, and gas chromatographyDeveloped techniques to measure colloidal nanomaterials surface ligand displacement reactions and reduction potential of colloidal nanomaterials using spectral redox titration and spectroelectrochemistry resulting in publications in the Journal of Americal Chemical Society and Inorganic ChemistryDesigned and characterized the surface composition of nanoscale materials for photocatalytic applications leading to a publication in Chemical Science and being awarded ND Energy's 2024 Eilers fellowship for excellence in energy-related researchPurified complex reaction mixtures using gel permeation chromatography and crystallization techniquesTroubleshoot and optimized complex experimental setups to resolve data quality issues, reducing downtime and increasing throughputPerformed data analysis and data interpretation using multiple data visualization softwares including MATLABCreated SOPs, enforced safety policies preventing any major accidents in the last 5 yearsLed undergraduate chemistry laboratory sessions focused on titration, spectroscopy, and chromatography by guiding students through experimental procedures and assessing lab reports for accuracy and scientific rigorMentored 4 graduate and undergraduate research assistants fostering their growth and developmentPresented research at national conferences including talks at the American Chemical Society annual meeting and the American Conference on Inorganic Nanomaterials meeting	
Teaching Assistant	
<ul style="list-style-type: none">CHEM-11171: Chemical Principles Laboratory (Fall 2021)CHEM-21274: Across the Periodic Table (Spring 2022)CHEM-12171: Intro to Chemical Principles (Fall 2022)CHEM-10122: General Chemistry–Fundamentals and Biological Processes	
Undergraduate Teaching and Research Assistant Kwame Nkrumah University of Science and Technology Supervisor: Dr. Nathaniel Owusu Boadi	09/2019 – 09/2020 Kumasi, Ghana

- Tested the antimicrobial properties of the inorganic complexes against *Staphylococcus aureus* and *Candida albicans* in a 96-well plate, using the broth dilution assay contributing to a publication in [Scientific African](#)
- Synthesized and characterized nickel–sulfide (NiS) thin films using spin coating and successive ionic layer adsorption and reaction (SILAR) methods for optical/electronic applications
- Conducted optical conductivity and resistivity tests to evaluate material performance.
- Delivered weekly tutorials in Thermodynamics, Coordination, and Organometallic chemistry to over 200 students

Analytical Chemist (Intern)

Kinapharma Company Limited

Supervisor: Mr. Enoch Okoe

05/2018 – 08/2018

Accra, Ghana

- Performed quality control testing of raw materials and pharmaceuticals using HPLC and GC, ensuring compliance with Ghana's FDA standards boosting production efficiency and reproducibility
- Worked amongst a team of Pharmacists and Chemists in the design, formulation, qualitative and quantitative analysis of various drugs including Megacid, Rhizin, Aspanol cough syrup, Diazekin-5 (Diazepam tablets), and Erythrokin-250 (Erythromycin tablets)
- Collaborated with R&D and manufacturing teams to troubleshoot production issues, reducing batch failures
- Supported formulation optimization to improve stability and shelf life of pharmaceutical products

Medical Laboratory Assistant (Intern)

LEKMA Hospital

Supervisor: Mr. Albert Yankson

05/2017 – 09/2017

Accra, Ghana

- Worked under the supervision of experts in the field of biochemistry, microbiology, and medical laboratory to analyze patient samples and provide results to test requests from medical doctors, including antenatal test requests
- Assisted the medical team in periodic mass blood donations to the hospital's blood bank

PUBLICATIONS

(1) **Degbevi, M.**; Balliew, W. L.; Hanguge, K. U.; Oliver, A. G.; Tsui, E. Y. Ligand Basicity Modulates Metal Cation Reduction Potentials at Colloidal Cadmium Chalcogenide Quantum Dot Surfaces. *J. Am. Chem. Soc.* **2025**, *147*, 18257-18266. DOI:

[10.1021/jacs.5c05413](https://doi.org/10.1021/jacs.5c05413)

(2) **Degbevi, M.**; Stoffel, J. T.; Tsui, E. Y. Coordinated Anions Tune Z-Type Ligand Displacement from Colloidal CdSe and InP Nanocrystal Surfaces. *Inorg. Chem.* **2024**, *63*, 23169-23178. DOI: [10.1021/acs.inorgchem.4c03534](https://doi.org/10.1021/acs.inorgchem.4c03534)

(3) Aschendorf, C. J.; **Degbevi, M.**; Prather, K. V.; Tsui, E. Y. EPR Spin Trapping of Nucleophilic and Radical Reactions at Colloidal Metal Chalcogenide Quantum Dot Surfaces. *Chem. Sci.*, **2023**, *14*, 13080-13089. DOI: [10.1039/D3SC04724E](https://doi.org/10.1039/D3SC04724E)

(4) Boadi, N. O.; **Degbevi, M.**; Saah, S. A.; Badu, M.; Borquaye, L. S.; Kortei, N. K. Antimicrobial properties of metalpiperidine dithiocarbamate complexes against *Staphylococcus aureus* and *Candida albicans*. *Scientific African*, **2021**, *12*, e00846. DOI:

[10.1016/j.sciaf.2021.e00846](https://doi.org/10.1016/j.sciaf.2021.e00846)

CONFERENCE TALKS & POSTER PRESENTATIONS

- "Modulating CdSe Colloidal Semiconductor Quantum Dot Surface Reduction Potentials." American Conference on Inorganic Nanomaterials (ACIN, 07/6/2025 to 07/10/2025) – Best Poster Award (IOP Science)
- "Effects of Coordinated Anions on Z-Type Ligand Displacement from Colloidal CdSe and InP Nanocrystal Surfaces." Purdue, Indiana University, Notre Dame (PINDU) Inorganic Chemistry conference (11/02/2024)
- "Effects of Coordinated Anions on Z-Type Ligand Displacement from Colloidal CdSe and InP Nanocrystal Surfaces." Chicago Regional Inorganic Colloquium (09/23/2024)

- "Modulation of Z-type ligand binding equilibria in Cd[Co(CO)₃L]₂-functionalized Quantum dots" American Chemical Society (ACS) Spring 2024 meeting (03/30/2024)
- "Cobalt Carbonyl Chemistry at CdSe Quantum Dot Surfaces." Purdue, Indiana University, Notre Dame (PINDU) Inorganic Chemistry conference (11/12/2022)
- Attended and presented a poster at the African Capacity Building Initiative (ACBI) International Conference in honor of Prof. Paul O'Brien. Theme: Materials for Renewable and Sustainable Energy – From Research to development (09/09/2019)
- Attended Ghana Students' Chemical Society's national annual conferences. Themes: Future Prospects of a Young Chemist (07/15/2018)
- Attended Ghana Students' Chemical Society's national annual conferences. Themes: Addressing unemployment – The role of the Chemist (06/20/2017) and Future Prospects of a Young Chemist (07/15/2018)

LEADERSHIP & OUTREACH

Coordinator and STEM Demonstrator

07/2022 – Present

- Science Alive, South Bend, Indiana: Organized hands-on outreach events at local schools and community events
- Starbase, South Bend, Indiana: Led chemistry demonstrations to encourage historically underrepresented students to pursue STEM careers

Teacher and Mentor

04/2012 – 10/2012

Catholic Action for Street Children, Latebiokorshie, Accra, Ghana

- Assisted street children to develop reading skills and teaching basic Mathematics
- Participated in field visits with the staff to encourage street children to turn away from various social vices and live a more positive lives

Major positions held:

National Organizer of Ghana Students' Chemical Society (2017-2018)

- Organized conferences that brought together all chemistry students from all the public universities in Ghana to share knowledge through presentations and to connect.

House Prefect of Aggrey House, Mawuli Senior High School (2014-2015)

- Ensured the overall operation and cleanliness of the student resident hall
- Organized contingents to represent the house in inter-hall athletics and quiz competitions
- Conveyed and communicated the concerns of residents to higher policy and decision makers such as school president

AWARDS & FELLOWSHIPS

- Best poster presentation overall at the American Conference on Inorganic Nanomaterials meeting (07/2025)
- Graduate Student Government (GSG) – conference presentation travel grant (06/2025)
- Patrick and Jana Eilers Graduate Student Fellowship for Energy Related Research (12/2024)
 - Recognized for excellence in energy-related materials research and interdisciplinary innovation with
- Notre Dame's Graduate School Professional Development Award (03/2024)

PROFESSIONAL CERTIFICATION

- Good Manufacturing Practices (GMP and cGMP)
- Good Laboratory Practices (GLP)
- Laboratory Information Management Systems (LIMS)
- Python for beginners

SCIENTIFIC ORGANIZATIONS & MEMBERSHIPS

- Member of the American Chemical Society (ACS, 02/2022 – Present)
- Member of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE, 05/2025 – Present)