Abdoulie A Jallow
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Education

Texas A&M University, College Station, TX | Doctor of Philosophy in Chemistry | May 2027 (exp.)
Supervisor: Dr. Lane A. Baker
Indian Institute of Technology Bombay, Mumbai, India | Master of Technology in Biomedical Engineering | August 2019
Supervisor: Dr. Debjani Paul
University of The Gambia, Brikama, The Gambia | Bachelor of Science (Hons) in Chemistry | June 2016
Supervisor: Mr. Oladele Oyelakin

Skills

Electrochemistry & Synthesis
Nanocrystal design and synthesis; Combinatorial screening, Electrocatalysis; High-throughput synthesis & analysis; Electrochemical reactor engineering; Electrodeposition; Electrolysis; Electrode fabrication; Voltammetry; Chronoamperometry; Chronopotentiometry; Electrochemical Impedance Spectroscopy
Characterization & Analytical Techniques
Scanning Electron Microscopy (SEM); Transmission Electron Microscopy (TEM); X-ray Photoelectron Spectroscopy (XPS); X-ray Diffraction Spectroscopy (XRD); UV-Vis Spectroscopy; Infrared (IR) Spectroscopy; Nuclear Magnetic Resonance Spectroscopy (NMR); Fourier Transform Infrared Spectroscopy (FTIR)
Data Analysis & Tools
Design of Experiments (DoE); Regression Analysis; Hypothesis Testing; AI-assisted Python programming; OriginPro; JMP; ImageJ
Laboratory Safety & Compliance
Risk Assessment; Hazard Identification & Communication; Accident Investigation; Root Cause Analysis
Professional Skills
Technical Writing; Project Management; Effective Communication; Teamwork

Experience

Texas A&M University | College Station, TX
Graduate Research Assistant | May 2024 – May 2027 (exp.)

- Design and execute high-throughput experiments to discover and engineer nanocrystal electrocatalysts (Cu_2O and Cu_2O-X alloys), systematically tuning reaction parameters to optimize catalytic performance for nitrate and CO_2 reduction to form ammonia and urea, respectively
- Integrate Design of Experiments (DoE) with automated liquid handling to accelerate reaction parametrization and screening
- Leverage OriginPro and Python to analyze large datasets to interpret reaction behavior, identify trends, and drive data-informed research decisions
- Lead three concurrent research projects, delivering high-quality results on schedule while upholding rigorous quality and ethical research standards
- Disseminate research findings through peer-reviewed publications and conference presentations, including 2 publications and 5 conference presentations to date

Texas A&M University | College Station, TX
Graduate Teaching Assistant (CHEM 434 – Analytical Instrumentation Laboratory) | August 2023 – May 2024

- Instructed 60 senior undergraduates in analytical chemistry techniques (GC, HPLC, FTIR, CE, AAS, CV) over one year, achieving a 99% student success rate
- Revised laboratory curriculum for 4 analytical techniques, improving content relevance and alignment with current practice
- Designed tailored instruction strategies, including one-on-one coaching and supplemental assignments, to support diverse student learning needs

Texas A&M University | College Station, TX
Graduate Research Assistant | May 2023 – August 2024

- Design and execute high-throughput experiments to discover and engineer Pd nanocrystals using combinatorial screening
- Characterize nanocrystals using electron microscopy (SEM and TEM)

- Leverage OriginPro and Python to analyze large datasets to interpret reaction behavior, identify trends, and drive data-informed research decisions
- Manage project consumables and ensure timely delivery of project objectives
- Disseminated research findings through 1 peer-reviewed publication and several conference presentations

Medical Research Council Unit The Gambia at LSHTM | Banjul, The Gambia
Health and Safety Advisor – Biological | June 2020 – August 2022

- Authored and maintained Unit-wide safety documentation — including 1 policy manual, 5 SOPs, 3 training courses, and 5 inspection checklists — to ensure regulatory compliance for chemical and biological work
- Partnered with 15 cross-functional teams to conduct risk assessments for chemical and biological work, embedding safety and security into experimental design
- Trained 100+ staff annually on chemical/biological safety, containment, and emergency response, ensuring a Unit-wide safety culture
- Led a chemical inventory remediation project to segregate and safely dispose of 1,000+ legacy chemicals, significantly reducing facility hazard risk

Publications

1. **Jallow, A.A**.‡, Gosh, H.‡, Skarabalak, S.E., and Baker, L.A., High-throughput electrochemical synthesis of facet-engineered Cu_2O nanocrystals via an array-based method. (*manuscript in preparation*)
2. **Jallow, A.A**., Gosh, H., Skarabalak, S.E., and Baker, L.A., Electrochemical reduction of nitrate to ammonia at facet-engineered Cu_2O nanocrystals. (*manuscript in preparation*)
3. Zhang, L.; Wahab, O. J.; **Jallow, A. A.**; O'Dell, Z. J.; Pungsrisai, T.; Sridhar, S.; Vernon, K. L.; Willets, K. A.; Baker, L. A. Recent Developments in Single-Entity Electrochemistry. Anal. Chem. 2024, acs.analchem.4c01406.
4. Personick, M. L.; **Jallow, A. A.**; Halford, G. C.; Baker, L. A. Nanomaterials Synthesis Discovery via Parallel Electrochemical Deposition. Chem. Mater. 2024, 36 (6), 3034–3041.
5. Dutta, G.; **Jallow, A. A.**; Paul, D.; Moschou, D. Label-Free Electrochemical Detection of S. Mutans Exploiting Commercially Fabricated Printed Circuit Board Sensing Electrodes. Micromachines 2019, 10 (9), 575.

Conference Presentations & Meetings

1. **Probing the selectivity of facet-engineered Cu_2O nanocrystals for the electrochemical reduction of nitrate to ammonia**
   Oral talk. Texas Electrochemistry Round-up, University of Texas at Austin, Austin, TX, US. **July 24, 2026**
2. **High-throughput electrochemical synthesis of faceted Cu_2O/Cu nanocrystals for the electrochemical reduction of nitrate to ammonia via an array-based method**
   Poster presentation. 2026 Gordon Research Conference on Noble Metal Nanoparticles, Mount Holyoke, Boston, MA, US. **June 21 – 26, 2026.**
3. **High-throughput electrosynthesis of facet-engineered Cu_2O/Cu nanocrystals for the electrochemical reduction of nitrate to ammonia**
   Oral talk (SEAC event) and poster presentation. Pittcon 2026, San Antonio, TX, USA**. March 7 – 11, 2026.**
4. **High-throughput Electrosynthesis Enabled by an Array-based Method**
   Poster and Group Meeting Presentations. Pittcon 2025, Boston, MA, USA. **March 1 – 5, 2025.**
5. Attendee (virtual): The Welch Foundation Frontiers in Molecular Catalysis, The Post Oak Hotel at Uptown, Houston, Texas, USA. **October 21 – 22, 2024**.
6. **Parallel electrodeposition of nanoparticles: Accelerating materials discovery and synthesis design**
   Presenter. ACS Fall 2024, Denver, CO & Hybrid, **August 18-22, 2024.**

Awards

- 2026: F.A. Cotton Endowed Memorial Graduate Travel Award, Dept. of Chemistry, TAMU, College Station, TX, US
- 2026: SEAC Poster Session – Pittcon 2026 Poster Winner, San Antonio, TX, US
- 2022: Commonwealth Shared Scholarship, Dept. of Chemistry, University of Warwick, Warwick, UK
- 2017: ICCR Scholarship Award – African Scholarship Scheme, Government of India, Mumbai, India
- 2014: Excellence in Science Education Scholarship, Gambia Ports Authority, Banjul, The Gambia

Leadership & Service

- Secretary · Chemistry Students' Safety Committee, TAMU | July 2025 – July 2026
- Analytical Division Rep. · Chemistry Students' Safety Committee, TAMU | July 2025 – July 2026
- Assistant Secretary · University of The Gambia Science Students' Association | May 2015 – May 2016

References

Available upon request