



EAST ALABAMA / WEST GEORGIA LOCAL SECTION RESEARCH SYMPOSIUM

March 21, 2026

Organizers

Byron Farnum – Auburn University
Evert Duin – Auburn University

Auburn University – Auburn, AL

East Alabama / West Georgia ACS Local Section Research Symposium

Auburn University
Auburn, AL
March 21, 2026

Organizers

Byron Farnum – *Associate Professor – Auburn University*

Evert Duin – *Professor – Auburn University*

General Schedule of Events

9:00 am – 9:20 am	Sign-In – ACLC Atrium
9:20 am – 9:40 am	Welcome Address – ACLC Atrium
9:40 am – 11:50 am	Oral Presentation Sessions Room 102 - <i>Analytical</i> Room 108 - <i>Physical</i> Room 202 – <i>Organic, Inorganic</i> Room 208 – <i>Materials, Environmental</i>
11:50 am – 1:30 pm	Lunch – EDGE Dining Hall
1:30 pm – 3:00 pm	Poster Session – ACLC Atrium
3:00 pm – 3:30 pm	Door Prizes / Closing Remarks – ACLC Atrium

*All times represent Central Time

ACLC = Academic Classroom and Laboratory Complex

Oral Presentations - Room 102

- 9:40 am **Kimberley Kartowikromo** – *Graduate Student – Auburn University*
Detection and Structural Characterization of Alzheimer’s Disease Biomarkers using Multidimensional Ion Mobility Mass Spectrometry
- 10:00 am **Sabita Dangol** – *Graduate Student – Auburn University*
Programmable Lab-on-a-Chip Systems using Valve Actuated 3D-Printed Microfluidic Devices for Biological Applications
- 10:20 am **Iffat Jerrin** – *Graduate Student – Auburn University*
Discrimination of Foodborne Bacterial Pathogens using Liquid Chromatography Ion Mobility Tandem Mass Spectrometry (LC-IM-MS/MS)
- 10:40 am **10-Minute Break**
- 10:50 am **Ugonna Nwankpa** – *Graduate Student – Auburn University*
DNA Melting at Electrode Surfaces to Study Biosensor Stability with Square-Wave Voltammetry
- 11:10 am **Adebowale Oyerinde** – *Postdoc – Auburn University*
Comprehensive Discrimination of Foodborne Bacteria Using Whole-Omics Profiling by LC-IM-MS/MS in Combination with Machine Learning Algorithms
- 11:30 am **Viraj Gandhi** – *Postdoc – Auburn University*
Improving Ion Transmission Across the Funnel-SLIM Interface Through SIMION Simulations with Experimental Validation

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Oral Presentations - Room 108

- 9:40 am **Md. Aminul Islam** – *Graduate Student – Tuskegee University*
Benchmarking Foundational Models for High-Throughput
Exfoliation-Energy Screening of MAX Phases
- 10:00 am **Zainab Olomowewe** – *Graduate Student – Auburn University*
Engineering Superparamagnetic Iron Oxide Nanoparticles
(SPIONs) for Contrast-Enhanced MRI
- 10:20 am **Alex Androutsopoulos** – *Graduate Student – Auburn University*
Insights into the Electronic Structure of $(\text{Ti-CO}_2)^-$ and $(\text{V-CO}_2)^-$
Species
- 10:40 am **10-Minute Break**
- 10:50 am **Andrei Evdokimov** – *Graduate Student – Auburn University*
Ab Initio Design of 2D Electrides with Hybrid Electronic
Structures
- 11:10 am **Melvin Emioma** – *Undergraduate Student – Tuskegee University*
Exploring the Adsorptions Properties of Thiophene on Bimetallic
Surfaces
- 11:30 am **Zainab Adeoluwa** – *Graduate Student – Auburn University*
Effects of Polymer Side Chains on Ultrafast Dynamics of
Electrochemically Induced Polarons.

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Oral Presentations - Room 202

- 9:40 am **Agshin Garayev** – *Graduate Student – Auburn University*
Blue Light Enabled C-C Bond Cleavage in Heteroarene Dimers.
Dearomative Alkylation of Heteroarene Salts.
- 10:00 am **Taiwo Adepoju** – *Graduate Student – Auburn University*
Design of Alkynylated [6]CPPs for Strain-Tolerant π -Extension
Reactions
- 10:20 am **Chase Ledbetter** – *Graduate Student – Auburn University*
Chelating bisCAAC–Cu Carbene Complex: Synthesis,
Characterization, and Preliminary Reactivity
- 10:40 am **10-Minute Break**
- 10:50 am **Charles Daramola** – *Graduate Student – Auburn University*
Manganese Complexes with a Fluxional Bipyridine Backbone
Enabling Multi-Electron Energy Storage in Redox Flow Batteries
- 11:10 am **Smriti Somai** – *Graduate Student – Auburn University*
Zinc Enhanced $2e^-$ Redox Chemistry for Ni(IV/II)
Diethyldithiocarbamate Couple
- 11:30 am **Md. Musharraf Hossain** – *Graduate Student – Auburn University*
Concerted Two-Electron Renewable Energy Storage for Redox
Flow Batteries by Nickel Bis(diphosphine) Complexes

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Oral Presentations - Room 208

- 9:40 am **Aboufazl Barati** – *Faculty – Troy University*
 Conductive Biodegradable PBAT/PHB Polymer Nanocomposites
- 10:00 am **Chukwuma Nwanazoba** – *Graduate Student – Auburn University*
 Life Cycle Assessment of an Optimized Carbon Dioxide Capture
 Process in a Pulp and Paper Mill
- 10:20 am **Ruiqi Li** – *Graduate Student – Auburn University*
 Lead Ion Removal from Aqueous Solutions using Biochar
 Materials from Different Wood Species
- 10:40 am **10-Minute Break**
- 10:50 am **Chloe Higdon** – *Undergraduate Student – Troy University*
 Julie Le Bras – *Undergraduate Student – Troy University*
 Survey of Volatility and Polarity of Hazardous Volatile Organic
 Compounds (VOCs) Potentially Present in Recycled Plastics
- 11:10 am **Camila Carneiro** – *Graduate Student – Auburn University*
 Physicochemical and Microstructural Characterization of Zein-
 Chitosan Macro- Polyelectrolyte Complexes (Macro-PECs)
- 11:30 am **Session End**

Poster Presentations

- 1. Ayesha Akter** – *Graduate Student – Auburn University*
Janus Liposomes: Exploring Liquid-Liquid Phase-Separating Lipid Systems Alternative to DOPC/DPPE/Cholesterol
- 2. Debneela Paul** – *Graduate Student – Auburn University*
Dielectrophoretic Motion and Assembly of Janus Liposomes
- 3. Eloge Lwamba** – *Graduate Student – Auburn University*
Advances in Method Development to Achieve Reusability of a DNA-based Electrochemical Bowtie Sensor Integrating Physical and Chemical Means
- 4. Mainul Mazumder** – *Graduate Student – Auburn University*
A Novel Probe for Sensitivity Enhancement of DNA Monolayer-based Electrochemical Sensors
- 5. Md. Naymor Rahaman** – *Graduate Student – Auburn University*
Lipidomic-Based Identification of Five Salmonella Serovars Using Liquid Chromatography Ion Mobility Mass Spectrometry (LC-IM-MS/MS)
- 6. Sheba Maaji** – *Graduate Student – Auburn University*
Surface-Specific and Bulk Measurements of Aerosol Acidity
- 7. Sanju Maharjan** – *Graduate Student – Auburn University*
On-Liposome Click Reaction
- 8. Michael Boadu** – *Graduate Student – Auburn University*
Characterization of Secondary Organic Aerosol Physicochemical Properties via Fluorescence Probe Spectroscopy
- 9. Vincent Kipter** – *Graduate Student – Auburn University*
In Situ Single Particle Measurements of Submicron Aerosol Particle Phase State

- 10. Celestine Egemba** – *Graduate Student – Auburn University*
Characterization of Metal-Linked Diisocyanide Self-Assembled Monolayers under Electrochemical Control by SFG-Stark Spectroscopy
- 11. Victoria Cover** – *Undergraduate Student – Auburn University*
Fluorescence Behavior of Probe Molecules in Model Aerosol Constituents
- 12. David Riese** – *Faculty – Auburn University*
Does Ligand-induced Signaling by ERBB4 Heterodimers Drive BRAF-WT Melanomas?
- 13. Harun Abdullah** – *Graduate Student – Auburn University*
Heterologous Expression of Hydroxylase MMOH Protein of Soluble Methane Monooxygenase (sMMO) from *Methylosinus trichosporium* OB3b (Mt OB3b)
- 14. Thach Do** – *Graduate Student – Auburn University*
Activation Complex of Methyl-Coenzyme M Reductase (MCR)
- 15. Kwansima Quansah** – *Graduate Student – Auburn University*
Towards Identifying the Role of a Cytochrome P450 (CYP107) Protein in the Bacillaene Biosynthetic Gene Cluster (BGC)
- 16. Joshua Ehun** – *Graduate Student – Auburn University*
Exploring Structure-Function Relationships via Experimental and Computational Methods in Dinoflagellates Bioluminescent
- 17. Evert Duin** – *Faculty – Auburn University*
The Active-Site [4Fe-4S] Cluster in the Isoprenoid Biosynthesis Enzyme IspH Adopts Unexpected Redox States during Ligand Binding and Catalysis

- 18. Laura Hall** – *Graduate Student – Auburn University*
Utilizing X-ray Absorption Spectroscopy to Study Selenocysteine vs Cysteine Binding by the Mercurial Transport Protein
- 19. Joseph Olaniyan** – *Graduate Student – Auburn University*
From Methane to Methanol: A High-Energy Quantum Chemical Insight into How Being Negative Can Be Positive.
- 20. Malachi Kent** – *Graduate Student – Auburn University*
Ionization Potentials: A Comparison of Cluster Perturbation Theory and Electron Propagator Theory
- 21. Taylor Gegory** – *Graduate Student – Auburn University*
Quantum Chemical Interpretation of the Electronic Structure of Neptunium(V)-oxo Complexes and their Stability
- 22. Wyn Newton** – *Undergraduate Student – Auburn University*
Performance and Memory Analysis of a Reworked Pythonic Coupled-Cluster Implementation Solving Jacobian Transformations
- 23. Emily Berlin** – *Undergraduate Student – Auburn University*
Comparing Approximately Renormalized Methods in Cluster Perturbation Theory and Electron Propagator Theory for Ionization Potentials
- 24. Bahareh Mirmashhouri** – *Postdoc – Troy University*
A Biocompatible and Sustainable Method for Keratin Extraction from Poultry Feathers Using N-Acetylcysteine
- 25. Megan Henley** – *Graduate Student – Auburn University*
Manipulation of the Lewis Acid Catalyzed Esterification Mechanism for Metal Oxide Nanoparticle Synthesis

- 26. Maksuda Parvin** – *Graduate Student – Auburn University*
Structure-Activity Relationships in Quinol Tethered Transition Metal Electrocatalysts for Dioxygen Reduction
- 27. Precious Eberonwu** – *Graduate Student – Auburn University*
Possible Catalase Mimicry of Mn(II), Fe(II), and Zn(II) Complexes with a Phenolic Ligand
- 28. Hailey Mackie** – *Undergraduate Student – Auburn University*
Synthesis and Characterization of a Benzyl-CAAC to Stabilize Low-Valent Metal Centers
- 29. Avery Musick** – *Undergraduate Student – Auburn University*
Metal Ligand Cooperativity Using a Non-Trigonal Phosphorus Center and Cobalt(II) Chloride Complex
- 30. Aboufazl Barati** – *Faculty – Troy University*
Enhancing Biodegradability and Processability of Recycled PET/PHB Blends for Additive Manufacturing Applications
- 31. Pritam Vitthalrao** – *Graduate Student – Auburn University*
Repurposing Waste Li-Ion Battery Materials for Efficient Catalysts in Methane Dry Reforming: Oxalic Acid Treatment Approach
- 32. Jai'Ana Burditte** – *Undergraduate Student – Tuskegee University*
Metal-Organic Framework Foam Composites for Next-Generation Filtration Applications
- 33. Ryan Spencer** – *Graduate Student – Auburn University*
Examining Local Electric Field Effects in Conducting Polymers using Vibrational Spectroelectrochemistry

- 34. Sarah Klinger** – *Undergraduate Student – Auburn University*
Tracking Photodoping in a P3HT Film using Absorbance Spectrophotometry
- 35. Trevor Hayes** – *Undergraduate Student – Auburn University*
Spectrochemical Investigation of the Break-In Effect of ProDOT (OE)-DMP
- 36. Samuel Lenze** – *Undergraduate Student – Auburn University*
Computational Study of Capture and Activation of N₂ Using Transitional Metal Anions
- 37. Armin Seyedesfahani** – *Graduate Student – Auburn University*
Enhanced Thermal and Mechanical Properties of Polyethylene (PE) and Polypropylene (PP) Blends using Self-Assembling Small Molecules
- 38. Eslam Abdelazim** – *Graduate Student – Tuskegee University*
D2A21, a Synthetic Membrane-Interactive Peptide, Induces Cytotoxicity and Inhibits Migration in Gastric Cancer Cells
- 39. Okikiola Falua** – *Graduate Student – Auburn University*
Characterizing Tunnel Gating Dynamics in Soluble Methane Monooxygenase: Understanding Substrate Access in a Key Enzyme for Greenhouse Gas Mitigation