

**East Alabama / West Georgia ACS Local Section
Research Symposium**
Troy University
Math & Science Complex (MSCX)
February 23, 2024

Organizers

Suzanne Lukjan – *Lecturer – Troy University*

Byron Farnum – *Associate Professor – Auburn University*

Christopher Grieco – *Assistant Professor – Auburn University*

General Schedule of Events

9:00 am – 11:50 am	Oral Presentation Sessions Room 214 - <i>Biochemistry, Environmental, Analytical, Physical</i> Room 318 - <i>Computational, Materials, Organic, Inorganic</i>
11:50 am – 1:00 pm	Lunch – Room 318 and 319
1:00 pm – 2:00 pm	Poster Presentation Session – Room 318 and 3 rd Floor Hallway
2:00 pm – 3:00 pm	Keynote Speaker – Room 326 Dr. Vincent Ortiz – <i>Emeritus Professor – Auburn University</i> Title: A Balanced Life: The Calling of Chemistry
3:00 pm	Closing Remarks Dr. Byron Farnum – <i>Associate Professor – Auburn University</i> Chair, ACS Local Section

Oral Presentations - Room 214

- 9:00 am **Chidinma Odili** – *Graduate Student – Auburn University*
Title: Studies into the Methylcysteine Modification of Methyl-Coenzyme M Reductase (MCR)
- 9:20 am **Savannah Fleming** – *Undergraduate Student – Troy University*
Title: Development of a Synthetic Lung Surfactant
- 9:40 am **Mojtaba Enayati** – *Assistant Professor – Troy University*
Title: Sustainable PET waste recycling: thermolysis of PET water bottle labels provide catalyst for PET waste recycling
- 10:00 am **Aboulfazi Barati** – *Postdoctoral Researcher – Troy University*
Title: Exploring the Recycling Potential of PET Reinforced with Silane Surface Treated Hemp Fiber
- 10:20 am 10-Minute Break
- 10:30 am **Angel Gibbons** – *Graduate Student – Auburn University*
Title: RH-Dependent Phase Transitions in Submicron Model Respiratory Aerosol Particles
- 10:50 am **Joanne Seow** – *Graduate Student – Auburn University*
Title: Portable Plug-and-Play 3D-Printed Pneumatic Circuits to Control Microfluidics
- 11:10 am **Samuel Abegaz** – *Professor – Columbus State University*
Title: Determination of Toxic Heavy Metals in Coffee Samples
- 11:30 am **Dayne Long** – *Undergraduate Student – Troy University*
Title: Deconvolution of GPC Chromatograms of PP-PE Mixtures with Multiple-Band IR Detector

Oral Presentations - Room 318

- 9:00 am **Eslam Abdelazim** – *Graduate Student – Auburn University*
Title: Activation of H₂O Via Anionic Molybdenum Oxides: A Combined Gas-Phase Experimental and Computational Study
- 9:20 am **Ian Steinke** – *Graduate Student – Auburn University*
Title: Design and Development of Novel Selective LXR/PPAR Dual Agonists for Alzheimer's Disease
- 9:40 am **Valentina Nesterova** – *Graduate Student – Auburn University*
Title: Role of Termination Groups in Maintaining MXenes Stability in Water: Insights from *ab initio* Molecular Dynamics
- 10:00 am **Rezoanul Islam** – *Graduate Student – Auburn University*
Title: Ligand Influenced Redox Behavior of Ni(II) Bis(dithiocarbamate) Complexes in Non-aqueous Media
- 10:20 am 10-Minute Break
- 10:30 am **Taiwo Adepoju** – *Graduate Student – Auburn University*
Title: Size-Selective Synthesis of [n]Cycloparaphenylenes via Cyclohex-2-ene-1,4-diol-based Approach
- 10:50 am **Didimos Pulikkottil** – *Graduate Student – Auburn University*
Title: Synthesis and Application of 2,7-Difunctional Pyrene Derivatives
- 11:10 am **Chase Ledbetter** – *Graduate Student – Auburn University*
Title: Synthesis of Cyclic (Alkyl)(Amino) Carbenes to Stabilize Low Oxidation State Transition Metal Complexes for Selective Methane to Methanol Conversion
- 11:30 am **Pamodya Weerasuriya** – *Graduate Student – Auburn University*
Title: Metal-Ligand Cooperative Chemistry Using a Cobalt Complex with a Non-Trigonal Phosphorus Ligand

Poster Presentations (alphabetical)

Mainul Islam – *Graduate Student – Auburn University*

Title: Rapid and Simple Quantification of Estradiol using a DNA-based Electrochemical Bowtie Sensor

Aboufazi Barati – *Postdoctoral Researcher – Troy University*

Title: Enhancing Compatibility and Performance of PBAT/PHB Blends with PE-g-MA Reactive Compatibilizer

Andrei Evdokimov – *Graduate Student – Auburn University*

Title: Solvated Electron Precursors: Unveiling the Potential for Quantum Computing Hardware

Caitlyn Clark – *Graduate Student – Auburn University*

Title: Ultrafast Pump-Probe Spectroelectrochemistry of a Conducting Polymer

Celestine Egemba – *Graduate Student – Auburn University*

Title: Characterization of Self-Assembled Monolayers with Tethered Reactive Complexes using Sum Frequency Generation Spectroscopy

Emily Sustarich – *CMMS Laboratory Technician – Troy University*

Title: Survey of Molecular Weight Distribution of Post-Consumer Recycled Polypropylene and Polyethylene

Fajar Setyo Wibowo – *Graduate Student – Auburn University*

Title: Design and Development of Novel LXR β -selective Partial Agonist for Alzheimer's Disease

Hieu Pham – *Graduate Student – Auburn University*

Title: A surface venting strategy that enables more complexity in high resolution 3D-printed microchannel designs

Joshua Howell – *Graduate Student – Auburn University*

Title: Using Japanese Woodwork as Inspiration for 3D Print-Based Microfluidic Design

Maksuda Parvin – *Graduate Student – Auburn University*

Title: Evaluation of the structure-catalytic oxygen reduction activity relationship of a Cobalt(II) complex using a quinol tethered ligand

Musharraf Hossain – *Graduate Student – Auburn University*

Title: Nickel bis(diphosphine) complexes as promising multielectron redox couples for anolytes in energy storage redox flow batteries

Meenakshi Singh – *Postdoctoral Researcher – Auburn University*

Title: Regulation of Asparaginyl Endopeptidase signaling as a target for frontal temporal dementia

Meet Chapani – *Undergraduate Student – Troy University*

Title: Chemical Upcycling of Waste Water Bottles into Metal-organic Framework Compounds

Nicholas Crall – *Graduate Student – Auburn University*

Title: LXR Cofactor Recruitment Elucidation in Alzheimer's Disease using Molecular Dynamics and Machine Learning

Prosenjit Ray – *Graduate Student – Auburn University*

Title: Metabolomic Analysis of Bioluminescent Dinoflagellates

Raj Amin – *Associate Professor – Auburn University*

Title: A Novel PPAR modulator Enhances Brain Derived Neurotrophic Factor signaling And Improves Cognitive deficits in Transgenic mouse model of Alzheimer's disease

Ryan Spencer – *Graduate Student – Auburn University*

Title: Probing Polarons in Conjugated Polymers with Differing Side Chain Lengths Using F4TCNQ

Sabita Dangol – *Graduate Student – Auburn University*

Title: Advancing microfluidic methods for rapid tissue stimulation and measurement by designing and characterizing a passively operated 3D-printed incubation and sampling chamber

Smriti Somai – *Graduate Student – Auburn University*

Title: Electrolyte Dependent Cyclic Voltammetry for 2e- Ni(IV/II) couple

Somayeh Mohammadi – *Postdoctoral Researcher – Troy University*

Title: Magnetic Ionic Liquid Catalyst Functionalized with Antimony(III) Bromide for Effective Glycolysis of Polyethylene Terephthalate

Susan Short – *Graduate Student – Auburn University*

Title: Structural and Mechanistic Studies of an Integral Membrane Desaturase

Vipasha Dwivedi – *Graduate Student – Auburn University*

Title: The ERBB4 Heterodimers Appear to Drive BRAF WT Melanoma Cell Lines

Eloge Lwamba – *Graduate Student – Auburn University*

Title: Development of an efficient cleaning procedure for reuse of gold-on-glass electrodes embedded within polydimethylsiloxane chambers and validation by electrochemical biosensing of labeled DNA.

Keynote Speaker

Dr. Vincent Ortiz

Professor Emeritus

Department of Chemistry and Biochemistry

Auburn University



Presentation Title:

“A Balanced Life: The Calling of Chemistry”

