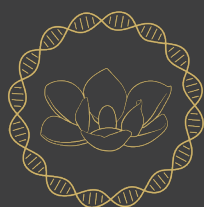


Mississippi
IDeA/EPSCoR
Conference 2023

Thursday, July 27, 2023

Thad Cochran Center
The University of Southern Mississippi
Hattiesburg, MS

Hosted By



MISSISSIPPI
INBRE
IDeA Network of Biomedical Research Excellence

Mississippi
EPSCoR

Welcome

A message from the STEM Scientific Organizing Committee

Welcome to the second annual Mississippi IDEa/EPSCoR Conference 2023 (MIEC23). As a collaborative effort involving a multitude of organizations, institutions, faculty and students from all areas of research, we hope this meeting not only proves fruitful for both those attending and presenting today, but in strengthening STEM research in Mississippi as a whole.

Today's meeting consists of three concurrent oral session tracks encompassing a wide range of research subjects, a student poster session, as well as professional development sessions for both students and faculty. These sessions are designed to both allow faculty and students to share the findings of their research, as well as to cultivate meaningful collaborations between researchers that will help us all to tackle the state's most important research challenges together as a cohesive group.

We would like to thank all who were involved with the organization of this conference for your boundless dedication to STEM research. We also send our deepest gratitude to our sponsors. Without your support, meetings such as this would not be possible. And finally, thank you to our attendees for taking the time to support our faculty and student researchers today.

Together, we can all make a difference.

Sincerely,

The MIEC23 Scientific Organizing Committee:

Alex Flynt, PhD
Program Director, Mississippi IDEa Network of
Biomedical Research Excellence (INBRE)

Jennifer Lemacks, PhD, RD, LD
Director, Mississippi INBRE Telenutrition Center

Sarah Morgan, PhD
Science Director, Center for Emergent Molecular
Optoelectronics (CEMOs), Mississippi Established
Program to Stimulate Competitive Research
(EPSCoR)

Claire Clemons, MEd
Director of Outreach, Education and Student
Programs
School of Polymer Science and Engineering
The University of Southern Mississippi

Katie Echols, PhD
Executive Director, Research Initiatives and
Innovation
Office of Research and Economic Development
Mississippi State University

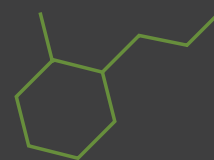
SCHEDULE

7:30-8:15 AM	Registration & Breakfast	2nd Floor Lobby	
8:15-9:00 AM	Opening Session	Joe Paul Theater	
9:00-10:00 AM	Cell Biology TCC 214	Data Science TCC 218	CEMOS Y5 Seed Grant Awardees TCC 216
10:00-10:15 AM	Break		
10:15-11:15 AM	Chemistry TCC 214	Pharmacology TCC 218	CEMOS Graduate Research Session I TCC 216
11:15-11:30 AM	Break	2nd Floor Lobby	
11:30 AM-12:30 PM	Physiology TCC 214	Neurobiology TCC 218	CEMOS Graduate Research Session II TCC 216
12:30-1:30 PM	Lunch	Fresh Food Company	
1:30-3:00 PM	Poster Session	Grand Ballroom	
3:00-3:15 PM	Break & Refreshments	2nd Floor Lobby	
3:15-4:15 PM	Faculty Professional Development TCC 218	Student Professional Development Joe Paul Theater	
4:15-4:30 PM	Break	2nd Floor Lobby	
4:30-5:00 PM	Awards & Closing Remarks	Joe Paul Theater	

Opening Session

8:15 - 9 A.M.

Joe Paul Student Theater



Speakers



Alex Flynt, PhD

Program Director, Mississippi INBRE
Associate Professor
School of Biological, Environmental and Earth Sciences
The University of Southern Mississippi



John-David Swanson, PhD

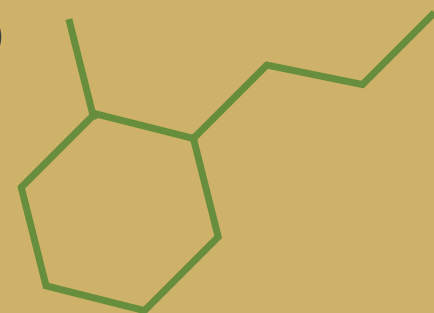
Program Director, EPSCoR
Office of the Director, Office of Integrative Activities
National Science Foundation



Caroline Compretta, PhD

Co-Director, Mississippi Center for Clinical and Translational Research CEO Core
Assistant Professor,
Departments of Preventative Medicine and Pediatrics
University of Mississippi Medical Center

Sessions 1-3



9-10 A.M.

Cell Biology

TCC 214

Session Description:

Graduate students conducting research in the field of cell biology will report the findings of their research.

Moderator:

Dmitri Mavrodi, PhD
The University of Southern Mississippi

Speakers:

9 A.M.- Shailendra Dhakal
“Heterotypic interaction of α S and TDP-43 in neurodegenerative diseases”
School of Mathematics & Natural Sciences
The University of Southern Mississippi

9:15 A.M.- Damilola Oyeboode
School of Biological, Environmental and Earth Sciences
The University of Southern Mississippi

9:30 A.M.- Nazneen Farzana
“Elucidating the mechanism of IL-17A signaling in WNV pathogenesis”
School of Biological, Environmental and Earth Sciences
The University of Southern Mississippi

Data Science

TCC 218

Session Description:

Graduate students conducting research in the field of data science will report the findings of their research.

Moderator:

Olga Mavrodi, PhD
The University of Southern Mississippi

Speakers:

9 A.M.- Kevin Quito
“Mining of sRNA Data to Understand IsoMir Abundance”
School of Biological, Environmental and Earth Sciences
The University of Southern Mississippi

9:15 A.M.- Andrew Milner
“Cracking Kidney Function: Bioinformatic Analysis of Single Nuclei RNA-seq Data using Seurat and Cluster Profiler”
School of Biological, Environmental and Earth Sciences
The University of Southern Mississippi

9:30 A.M.- Manashwini Jageer, MPH
“Examining the Relationship Between Loneliness and Psychosocial Factors: Evidence from the CARDIA Study”
School of Health Professions
The University of Southern Mississippi

9:45 A.M.- Bradley Lamb
“Machine Learning-Assisted Exploration of Copolymer Processing Parameters”
School of Polymer Science and Engineering
The University of Southern Mississippi

CEMOS Y5 Seed Grant Awardees

TCC 216

Session Description:

Assistant professors receiving Seed Grant Awards from NSF CEMOs will present the initial results from their research.

Session Moderator:



Tristan Clemons, PhD
Assistant Professor
School of Polymer Science & Engineering
The University of Southern Mississippi

Speakers:



Xuyang He, PhD
“Organic Electrochemical Transistors (OECT) for Synthetic Drugs Detection”
Assistant Professor, School of Criminal Justice, Forensic Science and Security
The University of Southern Mississippi



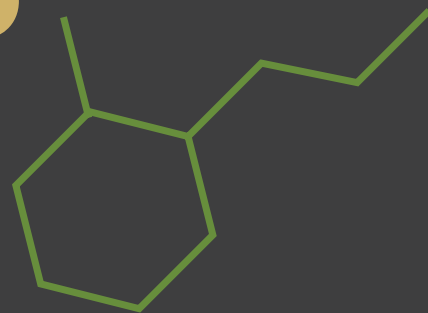
Vignesh Sundaresan, PhD
“Studying single entities in nanopore electrode arrays”
Assistant Professor
Department of Chemistry & Biochemistry
University of Mississippi



Zhe Qiang, PhD
“Plastic innovations toward a sustainable future”
Assistant Professor
School of Polymer Science & Engineering
The University of Southern Mississippi

Sessions 4-6

10:15-11:15 A.M.



Chemistry

TCC 214

Session Description:

Graduate students conducting research in the field of chemistry will present the findings of their research.

Speakers:

Piyush Kumar

“Surface Sulfurization of Electrodeposited Transition Metal Toward Electrocatalytic Water Splitting Applications”

School of Mathematics and Natural Sciences
The University of Southern Mississippi

Francis Klenam Kekessie

“Development of an Organocatalyzed Nucleophilic Addition of Masked Acyl Cyanides to Azomethine Imines”

School of Mathematics and Natural Sciences
The University of Southern Mississippi

Nazmul Hosen

“The Synthesis of a Coumarin-enamine Chemodosimeter for the Detection of Diisopropylfluorophosphate, a Nerve Agent Mimic”

School of Mathematics and Natural Sciences
The University of Southern Mississippi

Leah Case

“The use of inclusion chemistry to increase the solubility of a para-bis-coumarin-enamine probe”

School of Mathematics and Natural Sciences
The University of Southern Mississippi

Pharmacology

TCC 218

Session Description:

Graduate students conducting research in the field of pharmacology will present the findings of their research.

Moderator:

Jacques Kessl, PhD

Associate Professor

The University of Southern Mississippi

Speakers:

10:15 A.M.- Emily Rasmussen

“Synthesis of Programmable Hydrogel at Room Temperature with Tuneable Release for Various Delivery Applications”

Department of BioMolecular Sciences
University of Mississippi

10:30 A.M.- Miguel De Leon

“Utilization of DeepLabCut to assess the effects of cannabichromene on paclitaxel-induced neuropathic pain”

Department of BioMolecular Sciences
University of Mississippi

10:45 A.M.- Ashley Griffin

“Indoxyl Sulfate administration during pregnancy leads to a renal injury phenotype”

Department of Neuroscience
University of Mississippi Medical Center

11 A.M.- Krunal Patel

“Design and Synthesis of Allosteric Inhibitors of HIV-1 Integrase”

School of Mathematics & Natural Sciences
The University of Southern Mississippi

CEMOS Graduate Research Session I

TCC 216

Session Description:

Graduate students and post-doctoral fellows will present the results of their CEMOs collaborative research across the four Mississippi research institutions.

Session Moderator:



Ryan Fortenberry, PhD

Associate Professor
Department of Chemistry & Biochemistry

University of Mississippi

Speakers:

Noah Garrett

“Accurate Rovibronic Properties for Optoelectronics”

Department of Chemistry and Biochemistry
University of Mississippi

Pohlee Chea, PhD

“In vitro and in vivo performance for squaraine dye-BSA-conjugated iron oxide nanoparticles (IO-BSA-SQ) for dual modality imaging-guided photothermal therapy”

Department of Chemistry, Physics and Atmospheric Sciences
Jackson State University

Humayun Ahmad

“Core-shell electrospun stretchable fiber with enhanced reversibility”

Dave C. Swalm School of Chemical Engineering
Mississippi State University

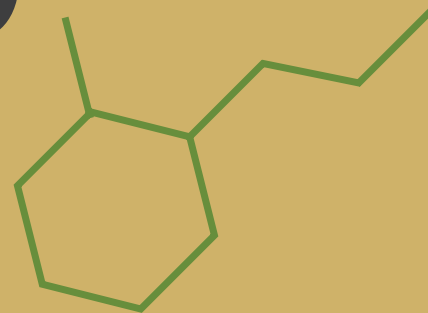
Evan Stacy

“Polymeric Vectors for the Targeted Delivery of Nucleic Acid Therapeutics”

School of Polymer Science & Engineering
The University of Southern Mississippi

Sessions 7-9

11:30-12:30 P.M.



Physiology

TCC 214

Session Description:

Graduate students conducting research in the field of physiology will present the findings of their research.

Moderator:

Jonathan Lindner, PhD

The University of Southern Mississippi

Speakers:

11:30 A.M.- Latoyia Downs

School of Biological, Environmental, and Earth Sciences

The University of Southern Mississippi

11:45 A.M.- Zinat Mahal

“Changes in the renin angiotensin system in offspring exposed to maternal hyperandrogenemia (model of maternal polycystic ovary syndrome)”

Department of Cell & Molecular Biology

University of Mississippi Medical Center

12:30 P.M.- Alexis Graham

“Design, development and validation of a perfusion-compression bioreactor to study osteogenesis in bone explants”

Department of Agricultural & Biological Engineering

Mississippi State University

12:45 P.M.- Simranjit Kaur

“Effect of reduced uteroplacental perfusion and seizures on cognitive function and Alzheimer’s disease markers at two months postpartum”

Department of Neurology

University of Mississippi Medical Center

Neurobiology

TCC 218

Session Description:

Graduate students conducting research in the field of neurobiology will present the findings of their research

Moderator:

Lir-Wan Fan, PhD

Professor

University of Mississippi Medical Center

Speakers:

11:30 A.M.- Maria Peña Porter

“Investigating the Molecular Mechanisms Underlying Circadian Regulation of Short-Term Olfactory Learning in *Drosophila melanogaster*”

Department of Biology

University of Mississippi

11:45 A.M.- Allie Smith

“Genetic model of diabetes alters anxiety behavior following juvenile traumatic brain injury”

Department of Neurology

University of Mississippi Medical Center

12:30 P.M.- Mathew Thibodeaux

“Inhibition of the aromatase-mediated neuroprotective mechanism in the zebra finch cerebellum lead to cognitive defects”

Department of Biology

University of Mississippi

12:45 A.M.- Hadley Thompson

“Effect of Reduced Acid Sensing Ion Channel 2a and Seizure Exposure on Vascular-Associated Cannabinoid Receptor 1 Expression in Mouse Hippocampus and Cortex During Pregnancy”

Department of Neurology

University of Mississippi Medical Center

CEMOs Graduate Research Session II

TCC 216

Session Description:

Graduate students and post-doctoral fellows will present the results of their CEMOs collaborative research across the four Mississippi research institutions.

Session Moderator:



Qilin Dai, PhD

Associate Professor
Department of Chemistry,
Physics & Atmospheric
Sciences

Jackson State University

Speakers:

Jing Qu

“A novel strategy of synthesis magnetic Fe₃O₄ in ethylene glycol solvent”

Department of Chemistry, Physics & Atmospheric Sciences

Jackson State University

Cameron Smith

“Spectroscopic Investigation of Newly Developed NIR Dyes”

Department of Chemistry & Biochemistry
University of Mississippi

Anuraj Kshirsagar, PhD

“Strong Quantum-Confined CsPbBr₃/FAPbBr₃ Core-Crown Nanoplatelets for Light Emitting Diodes”

Department of Chemistry
Mississippi State University

Sonia Stanciu

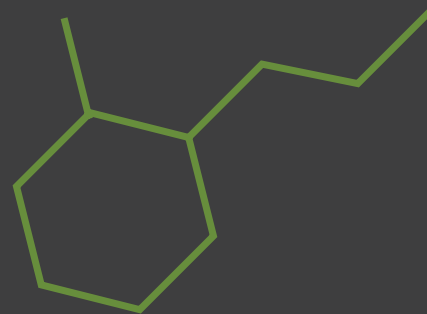
“Enhancing light upconversion in singlet sink-containing polymer glasses”

School of Polymer Science & Engineering
The University of Southern Mississippi

Poster Session

1:30-3 P.M.

Grand Ballroom

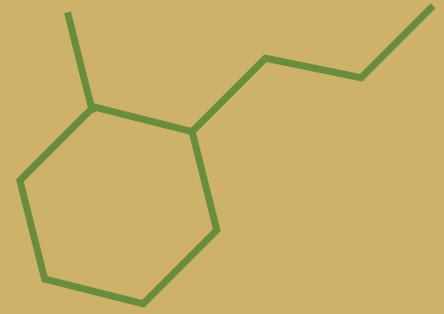


**Scan the QR code below to
download poster abstracts:**



Sessions 10-11

3:15-4:15 P.M.



Faculty Professional Development

TCC 218

“Grant-Seeking 101: What They Don’t Teach You in Grad School”

Learning Objectives:

- I. Participants will be able to search strategically for appropriate funding opportunities by improving their understanding of search methods and trends in the funding landscape.
- II. Participants will be able to analyze a solicitation for the purposes of producing a responsive, compliant and quality proposal.
- III. Participants will increase their knowledge of the common administrative steps and regulatory requirements for preparing and submitting a proposal for external funding.

Speaker:



Stephanie Hyche

Director
Office of Research Development

Mississippi State University

Student Professional Development

Joe Paul Student Theater

Session Description:

Breland Crudup, MD, graduate student in the Department of Physiology and Biophysics at the University of Mississippi Medical Center, will describe his graduate student journey at UMMC, as well as give students tips and career advice regarding their own journey through graduate school.

Speakers:

Breland Crudup, MD

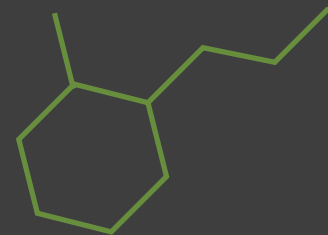
“Becoming a Doctor; Finding My Passion for Medicine and Research”

Department of Physiology and Biophysics
University of Mississippi Medical Center

Awards & Closing Remarks

4:30-5 P.M.

Joe Paul Student Theater



Speaker



Alex S. Flynt, PhD

Director, Mississippi INBRE

Associate Professor

School of Biological, Environmental and Earth Sciences

The University of Southern Mississippi



Organizing Committee



Alex Flynt, PhD

Director, Mississippi INBRE
Associate Professor

School of Biological,
Environmental & Earth Sciences

*The University of
Southern Mississippi*



Katie Echols, PhD

Executive Director,
Research Initiatives & Innovation

Office of Research & Economic
Development

Mississippi State University



Jennifer Lemacks, PhD

Director, Mississippi INBRE
Telenutrition Center

Associate Dean for Research
Associate Professor
College of Nursing & Health
Professions

*The University of
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Claire Clemons, MeD

Director of Outreach, Education
& Student Programs

School of Polymer Science &
Engineering

*The University of
Southern Mississippi*



Sarah Morgan, PhD

Science Director, Mississippi
EPSCoR CEMOs

Executive Associate Director
Professor
School of Polymer Science &
Engineering

*The University of
Southern Mississippi*



Organizing Committee



Danny Holland

Events and Public Relations Assistant
Mississippi INBRE
School of Biological, Environmental & Earth Sciences
The University of Southern Mississippi



Jordan Laster

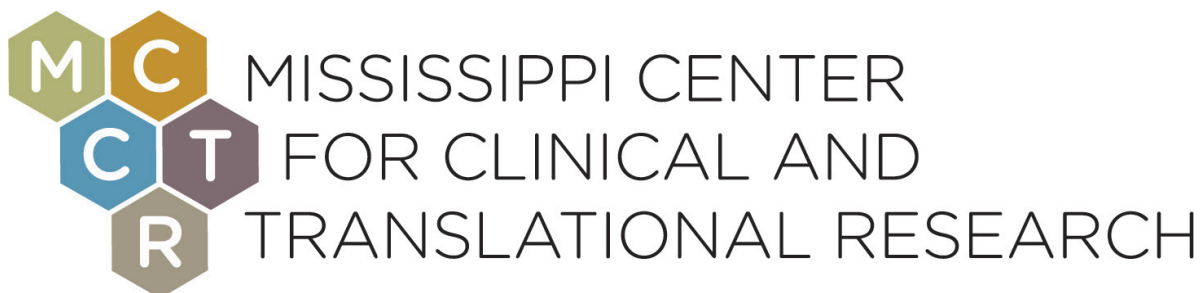
Logistics & Outreach Specialist
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Mary Ann McRaney

Network Coordinator
Mississippi INBRE
School of Biological, Environmental & Earth Sciences
The University of Southern Mississippi

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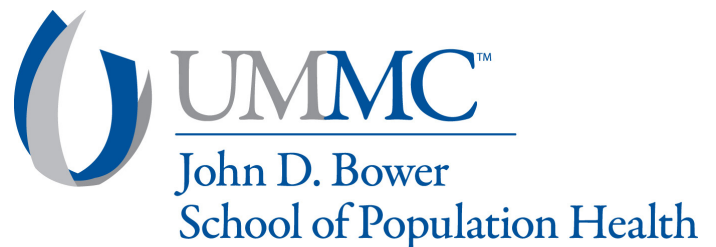


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