

## Detailed Program

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### *Monday, May 23*

10:00 AM      Registration Opens (Hunter Henry Center)

*Lunch (On Your Own)*

12:45 PM      **Welcome and Opening Remarks**

*Dr. Nicholas Fitzkee, MSU Department of Chemistry*

*Dr. Giselle Thibaudeau Munn, Associate Dean for Research, College of Arts and Sciences, MSU*

### **2016 Lester Andrews Graduate Research Symposium Keynote Address**

1:00 PM      **Beyond Li-Ion: The Lithium/Sulfur Cell**

*Dr. Elton Carnes, UC Berkeley and Lawrence Berkeley National Laboratory*

2:00 PM      Break

### **Session 1: Covalent Modification of Biomolecules**

*Moderator: Kayla McConnell, Mississippi State University*

2:15 PM      Glycan Structural Changes to Notch1 Epidermal Growth Factor-like Repeats

*Megan Macnaughtan, Louisiana State University*

2:45 PM      Global Profiling of Lysine Acetylome in Developing Rice (*Oryza sativa*) Seeds

*Xiaoxi Meng (Peng Lab), Mississippi State University*

3:05 PM      Preliminary characterization of model erythromycin resistance methyltransferases

*Jack Dunkle, University of Alabama*

3:35 PM      Break

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### Session 2: Energetics

*Moderator:* Valeria Zai-Rose, University of Mississippi Medical Center

- 3:45 PM      Quantification and Interpretation of Weak Preferential Interactions between Folate and Betaine  
*Purva P. Bhojane (Howell Lab), University of Tennessee Knoxville*
- 4:05 PM      Mechanisms of Enzyme Catalyzed Protein Unfolding and Translocation by Class 1 AAA+ Motors  
*Aaron L. Lucius, University of Alabama at Birmingham*
- 4:35 PM      Characterization Studies of Isolated Domain 1 of Neural Cadherin  
*Samantha Davila (Pedigo Lab), University of Mississippi*
- 5:00 PM      Break (Depart for Posters and Dinner at Palmeiro Center)
- 5:15 PM      Poster Set-Up at Palmeiro Center
- 5:30 PM      **Poster Session**
- 7:00 PM      Combined Lester Andrews and MRBC Dinner at Palmeiro Center
- 8:30 PM      Joint Social at Rosey Baby Bar  
*300 S. Jackson St., Starkville, MS 39759*

### ***Tuesday, May 24 (Morning)***

- 7:30 AM      Breakfast in your Hotel

### **Joint Lester Andrews and MRBC Session**

- 9:00 AM      Near Infrared Spectroscopy and Chemometrics can be used to Determine Physiological Status in the Endangered Snow Leopard (*Panthera uncia*)  
*Kristen Counsell (Vance Lab), Mississippi State University*
- 9:25 AM      The thermodynamics of metal and substrate binding with an taurine/ $\alpha$ -ketoglutarate-dependent oxygenase (TauD)  
*Mingjie Li (Emerson Lab), Mississippi State University*
- 9:50 AM      Typical and Atypical Prion-like Propagation of Neurotoxic Amyloid- $\beta$  Oligomers  
*Dexter N. Dean (Rangachari Lab), University of Southern Mississippi*
- 10:15 AM      Break

#### **Session 4: Disordered Systems**

*Moderator:* Michael Molnar, University of Mississippi

- 10:30 AM     Disorder within Cysteine-Rich Proteins: Curious Case of Granulins  
*Vijay Rangachari, University of Southern Mississippi*
- 11:00 AM     Optimizing doxorubicin derivative delivery using temperature sensitive biopolymers in multidrug resistant breast cancer cells  
*Sonja Dragojevic (Raucher Lab), University of Mississippi Medical Center*
- 11:20 AM     Developing the Elastin-like Polypeptide Biopolymer for Delivery of Growth Factor Therapeutics  
*Gene L. Bidwell, III, University of Mississippi Medical Center*
- 11:50 AM     Break for Lunch (On Your Own)

#### **Session 5: NMR Structure and Dynamics**

*Moderator:* Becca Hill, Mississippi State University

- 1:15 PM     Computational and experimental studies of ADP-ribose binding proteins  
*Margaret A. Johnson, University of Alabama at Birmingham*
- 1:45 PM     Inexpensive production of Site Specific  $^1\text{H}$ - $^{13}\text{C}$  Phenylalanine and Tyrosine  
*Bhargavi Ramaraju (McFeeters Lab), University of Alabama at Huntsville*
- 2:05 PM     Internal motions prime cIAP1 for rapid activation  
*Allyn J. Schoeffler, Spring Hill College*
- 2:25 PM     Break

#### **Session 6: Nano-Scale Biophysics**

*Moderator:* Melody Williams, University of Memphis

- 2:45 PM     Modulating Protein-Nanoparticle Binding Capacity Using Site-Directed Mutagenesis  
*Y. Randika Perera (Fitzkee Lab), Mississippi State University*
- 3:05 PM     Magnetic-Plasmonic Core-Shell Nanoparticles: Shape- Controlled Synthesis, Properties and Applications for Capture and Detection of Circulating Tumor Cells  
*Xiaohua Huang, University of Memphis*
- 3:35 PM     Can Surface-Enhanced Raman Scattering Identify the Drug Mechanism of Platinum-Based Anticancer Drugs?  
*Sidrah Khan (Mirsaleh-Kohan Lab), Texas Women's University*
- 4:00 PM     Break

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### 2016 Mississippi Regional Biophysics Consortium Keynote Address

- 4:15 PM      The coordinated action of RPA and DNA primase at the replication fork  
*Dr. Walter Chazin, Vanderbilt University*
- 5:15 PM      Break
- 5:45 PM      Dinner at Hilton Garden Inn  
*975 Highway 12 East, Starkville, MS 39759*

### Wednesday, May 25

- 7:30 AM      Breakfast in your Hotel

### Session 7: Biophysics of Catalysis & Function I

*Moderator:* Clint Mikek, Mississippi State University

- 9:00 AM      Building nonheme metal sites in biological systems  
*Joseph P. Emerson, Mississippi State University*
- 9:20 AM      Non-Specific Interactions of Dihydrofolate Reductase Ligands in Crowded Environments  
*Michael Duff (Howell Lab), University of Tennessee Knoxville*
- 9:50 AM      An Investigation into the Potential Dual Role of SirC in the Alternative Heme Biosynthetic Pathway of *Methanosarcina acetivorans* C2A  
*Victoria L. Owens (Mansoorabadi Lab), Auburn University*
- 10:15 AM      Break

### Session 8: Biophysics of Catalysis & Function II

*Moderator:* Claudette Fraire, Texas Women's University

- 10:30 AM      Using Molecular Modeling to Decipher the Molecular Targets of Bioactive Molecules.  
*Ifedayo Victor Ogungbe, Jackson State University*
- 11:00 AM      Biophysical Characterization of i-Motif Capped with Flanking Duplex Ends: A Model for c-MYC NHE-III<sub>1</sub> Complementary C-rich Strand  
*Amanda M. Metz (Lewis Lab), Mississippi State University*
- 11:20 AM      Elucidation of the Biosynthetic Pathway for the Key Coenzyme of Methanogenesis and Anaerobic Methane Oxidation  
*Steven O. Mansoorabadi, Auburn University*

- 11:50 AM      Break
- 12:00 PM      **Lunch Presentation with NanoTemper Technologies**  
*Hunter Henry Center*
- 1:00 PM      **MRBC 10 Planning Meeting**  
*Anyone interested in the future of MRBC is welcome and encouraged to attend this meeting.*
- 1:30 PM      Depart