TUESDAY 22 FEB

Graduate Research Symposium | 2022
GENERAL SCHEDULE
TBBC 4630
https://utah.zoom.us/s/96115344095
Passcode: 2022GRS

9:00 AM - KEYNOTE: Professor Ryan Looper
Living the Dream: A Journey in Small Molecule Science

9:30 AM - DISCOVERY: 20 minute talks

Dale A. Cummings Jr. (Puri)
Methylotroph Quorum Sensing Signal Identification by Inverse Stable Isotopic Labeling

Kevin Beaver (Minteer)
Probing Carboxylate Anolytes for Photo-Biofuel Cells through Bioinformatics and Electrochemistry

Dakota Merriles (Morse)
Spectroscopic Studies of n-Backdonating Early Transition Metal and Monovalent Lanthanide Diborides

11:00 AM - 5 minute talks

Joshua Ewigleben (Morse)
Spectroscopic Studies on Cryogenically-Cooled Cationic Metal-Containing Species

Brittany Haas (Sigman)
Molecular Descriptor Collection for Expanding the Scope of a Predictive Amide Coupling Rate Model

Sepehr Sebghati (Hammond)
Development of a Beta-lactamase Self-labeling Protein Tag

BREAK - 11:20 AM - 1:00 PM

1:00 PM - ENZYMES: 20 minute talks

Karsten Eastman (Bandarian)
Radical-mediated Disulfide Mimetic Introduced by Enzymatic Means

Hanna D. Clements (Sigman)
Biocatalytic Reaction Performance Prediction and Analysis

Nicholas (Nico) Lang (Buck-Koehntop)
Structural Investigation into DNA Recognition by the Methylated DNA Binding Protein ZBTB4

2:30 PM - 5 minute talks

Samantha Curry (Zharov)
Determining the Mechanism of Hollow Organosilica Nanoparticle Formation

Anh Nguyen (Shumaker-Parry)
Tunable Plasmonic Aluminum Nanostructures for Plasmon-enhanced Spectroscopy

Shereen Angela Howpay Manage (Burrows)
Cysteine oxidation in APE1 Impacts Interactions with NEIL3 Duplex and G-quadruplex Structures

6:00 - 7:00 PM NETWORKING PANEL: Teaching in Your Career
1:00 PM - DYADS IN CHEMISTRY: 20 minute talks

**E** Lorraine Laguerre Van Sickle (Frey)
Analysis of Factors that Influence Success in Introductory General Chemistry

**P** Yulia Pimonova (Gruenwald)
Towards Cocrystal Polymorph Prediction

**A** David L. Williamson (Nagy)
Unraveling the Effect of Isotopic Substitutions on Relative Mobility Shifts

2:30 PM - 5 minute talks

**O** Mohammad Samha (Sigman)
Multivariate Linear Regression Modeling of Hydrogen Bond Donor Organic Catalysts

**P** Will Matthews (Gruenwald)
Towards Crystal Structure Prediction from Solution Species

**A** Aria Ballance (Shumaker-Parry)
Chiral Plasmonics for Enhancing Molecular Detection

**BREAK - 2:50 - 3:00 PM**

3:00 PM - SIMULATIONS & STRUCTURE: 20 minute talks

**B** Praneeth Bommisetti (Bandarian)
Site-specific Profiling of 4-thiouridine Across Transfer RNA Genes in Escherichia coli

**B P** Hannah Burton (Swanson)
Differentiating Transmembrane Forces for Predictive Kinetic Analysis

**P** Asylbek A. Zhanserkeev (Steele)
Harnessing New Insights into Vibrational Couplings for Anharmonic Spectroscopy Simulations

4:30 PM - 5 minute talks

**O** Ellie Peters (Sigman)
Univariate Classification of Phosphine Ligation State and Reactivity in Cross-Coupling Catalysis

**B O** Michael Chabot (Burrows)
Identification of the Major Product of Guanine Oxidation in DNA by Ozone

**B** Madeline Meyer (Hammond)
Development of an RNA-based Biosensor to Image Glycine in Live Cells

6:00 - 7:00 PM NETWORKING PANEL: Researching in Your Career
Graduate Research Symposium | 2022

GENERAL SCHEDULE
TBBC 4630
https://utah.zoom.us/s/96115344095
Passcode: 2022GRS

1:00 PM - FUNDAMENTALS: 20 minute talks

E Joshua Edwards (Frey)
The Relationship between Students' Social Belonging and Performance in Chemistry Courses

B Andrew Jochimsen (Bandarian)
A Mechanistic Study of the Radical SAM Enzyme Superfamily

P Ryan Spencer (Steele)
Pushing Anharmonic Simulations to the Convergence Limit with Local Modes

2:30 PM - 5 minute talks

O Natalie Seeger (Sigman)
A Stereoselective Nickel Catalyzed Cross-Coupling to Access Tetrasubstituted Alkenes

A B Ashwini Dantanarayana (Minteer)
Bacterial Biosynthesis of Nanoparticles for Organic and Electrochemical Catalysis

B Nathan Ricks (Hammond)
Detection of Diguanylate Cyclase Activation through RNA-based Fluorogenic Biosensors

BREAK - 2:50 - 3:00 PM

3:00 PM - 5 minute talks

P Kim Tomchak (Morse)
Bond Dissociation Energies of Rhenium Containing Molecules: ReC, ReC2, ReN, ReO, and ReS

B Ngoc LB Nguyen (Burrows)
Does G-quadruplex Folding Direct the N6-methyladenosine Insertion and Removal in Humans and Viruses?

M Katherine Gingrich (Zharov)
Insights into the Mechanism of Silver Nanoparticle Formation on Silica Supports

6:00 - 7:00 PM NETWORKING PANEL: Alternative Careers in Chemistry
9:00 AM - KEYNOTE: Professor Shelley Minteer

Enzymatic Bioelectrocatalysis for Electrosynthesis

9:30 AM - HYBRIDS TALKS

20 minute talk

Tim McFadden (Minteer/Sigman)

Electro-inductive Effect: Bipolar Electrodes as Continuous Functional Groups

5 minute talks

Veronica O’Connor (Sigman)

Designing a Novel, Hybrid Class of Phosphoric Acid Catalysts (Part 1)

Jordan Liles (Sigman)

Optimization of a Novel Class of Phosphoric Acid Catalysts via Scaffold Hopping (Part 2)

11:00 AM - PRESENTERS SOCIAL: CSC 206

Presenters and judges are welcomed to the Crocker Science Center to socialize and celebrate after the closing of the symposium. This will be a mask mandatory event, and lunch will be provided to-go. Thanks for everyone’s hard work!