The Frost Symposium, Summer 2024

Cal Poly – Department of Chemistry and Biochemistry
Friday, August 16th, 2024 –– 9:00 am – 3:00 pm

Oral Session 1: 9:00-11:30
Building 181, Room 102

Poster Session: 11:45-1:15
Building 180, 4th Floor Atrium

Lunch: 12:00-1:00
Building 180, 4th Floor Atrium

Oral Session 2: 1:30-3:00
Building 181, Room 102

scan here for digital program

Oral Session 1: 9:00 am – 11:30 am Building 181, Room 102

[Title, **Presenting Author(s)**, Advisor(s)]

9:00 am: Session Begins

9:10 am: Session 1 Opening Remarks

John Hagen – Chair of the Department of Chemistry and Biochemistry

9:20 am: Spin class: Electronic and Steric Effects on UV-Vis spectra of Functionalized Dithiocarboxylate Compounds. **Oz Alkaitis**, **Isabella Towne**, **Alexander Ong**, David F. Zigler, M. Taylor Haynes III

9:32 am: Constructing a QSAR-Based Model to Help Detect GHB. **Sarah Chang**, **Zane Fink**, Erik Sapper

9:44 am: Ring Opening of Benzofused Arylcyclopropanes. **Emma Langworthy**, **Sophia Yurchenko**, Erik Kantorowski

9:56 am: Sortase-mediated ”Off-the-shelf” Bioluminescent Cell Labeling. **Kai Winstead-Leroy**, Joanna R. Laird

10:08 am: Imine Bond Equilibrium Studies Relevant to COF-300 Formation. **Hannah Negri**, Leslie S. Hamachi

10:20 am: *BREAK (10 minutes)*

10:35 am: Investigation into the Electronics of the Fragmentation of Ylidenenorbornadienes. **Danilo Alamillo**, **Erin Ituralde**, Daniel A. Bercovici

10:47 am: Noria-trisresorcinarene Biosensors for 129Xe HyperCEST MRI. **Mateo Wolfe**, Carson Hasselbrink

10:59 am: Structure-Property Relationships for Small Molecule Volatility. **Miles Brockbank**, **Liam Alsbury**, Erik Sapper

11:11 am: Synthesis of Quantum Dots for an Assay of Chorismate Synthase. **Samantha Lansky**, David F. Zigler, Eric Jones

11:23 am: Session 1 Closing Remarks

Dean Wendt – Dean of the Bailey College of Science and Mathematics

Philip Bailey – Dean Emeritus and Director of the Frost Fund

Poster Session: 11:45 am – 1:15 pm Bldg. 180, 4th floor atrium

[Title, **Presenting Author(s)**, Advisor(s)]

Exploration of Novel Silyl Norbornadienes. **Sonia Patil**, **Shawn D. Larson**, Daniel A. Bercovici

Investigating the Electronics of the Nucleophile Induced retro-[4+2] Fragmentation of Ylidenenorbornadienes. **Jacob D. Bellamah**, **Maya J. Frey**, **Scott T. Borchers**, Cameron J. Fleischer, Quinn E. Williams, Scott J. L'Heureux, Ashley N. Freeman, Danilo J. Alamillo, Joneaux H. Moore, Erin A. Ituralde, Philip J. Costanzo, Daniel A. Bercovici

Synthesis of Acyclic Nucleosides for Polymerization into Functionalized Polyethylene Glycol for Antisense Therapy and Hydrogel Design. **Blake Maxon**, **Abe Tabatabaian**, Tammy Campbell

Green Esterification: Mechanochemical Synthesis of Acetate Derivatives via Primary Alcohols. **Patrick Harmon**, Colin Thompson, Jennifer Carroll

Exploration of Esterification Reactions via Mechanochemistry. **Colin Thompson**, Patrick Harmon, Jennifer Carroll

Colloidal COF Pigments in Water-Based Latex Coatings. **Sophie Tinkle**, Sachi M. Ottoes, Leslie S. Hamachi

Colloidal Synthesis of COF-300 Particles with Sterically Hindered Benzoic Acid Catalysts. **Jackson C. Arroyo**, **Jeffrey P. Johnson**, Alexis F. Mojica, Zoe G. Jackson Delos Angeles, Leslie S. Hamachi

Small Molecule Studies on Imine Bond Formation Equilibria Relevant to the Formation of Colloidal COF-300 Covalent Organic Frameworks. **Sofia Valencia**, Hannah A. Negri, Leslie S. Hamachi

Sterically Hindered Carboxylic Acid Catalysts in Colloidal COF-300 Synthesis. **Erin Wang**, **Andrew Cherry**, Alexis F. Mojica, Zoe G. Jackson Delos Angeles, Sophie J. Tinkle, Nathan A. Wong, Kyla J. Carlson, Dean M. Kim, Alison C. Chew, Brendan M. Posson, Leslie S. Hamachi

Structural Color Pigments in Paints. **Kyle W. Liston**, Estela Osorio Garcia, Zoe G. Jackson Delos Angeles, Leslie S. Hamachi

Development of Synthetic Biosensors for Xe-129 HyperCEST MRI. **Mateo Wolfe**, Kate Morris, Gianna Derrenbacher, Sara Cawein, Elle Fishwick, Tiffany Kha, Carson Hasselbrink

Light and Brimstone: A Study into the Photochemistry of Dithiocarboxylates. **Karalee Webb**, **Riya Nigudkar**, Alexander Ong, David F. Zigler, M. Taylor Haynes III

Spin class: Electronic and Steric Effects on UV-Vis spectra of Functionalized Dithiocarboxylate Compounds. **Isabella R. Towne**, **Oz L. Alkaitis**, **Alex Ong**, Colin F. Krock, David F. Zigler, M. Taylor Haynes III

Light and Brimstone: Attempted Syntheses of Fluorinated Dithiobenzoates. **Colin F. Krock**, Isabella R. Towne, Oz L. Alkaitis, Alexander Ong, David F. Zigler, M. Taylor Haynes III

Synthesis of Quantum Dots for an Assay of Chorismate Synthase. **Samantha L. Lansky**, David F. Zigler, Eric Jones

Testing Conditions for Mycelial Degradation of Model Microplastics. **Sam Margolin**, Eric Jones

Cyclopropanation and Ring Opening of 1-Arylindene and 1-Aryl-3,4-dihydronaphthalene Derivatives. **Emma Langworthy**, **Sophia Yurchenko**, **Eva Voss**, **Kaitlyn Hand**, **Arianna Ortiz**, Eric Kantorowski

Development of "Off-the-Shelf" Bioluminescent Reporters. **Kai J. Winstead-Leroy**, **Grisha A. Dekhtyar**, Joanna R. Laird

Development of Chronometric Biosensors. **Julia Thomas Niec**, **Luke Desouza-Lawrence**, Nathaniel W. Martinez, Andres W. Martinez

Evaluation of Enzyme Stabilizers on Paper-Based Microfluidic Devices. **Christy Liao**, Alyssa M. Pama, Ulises Frick, Nathaniel W. Martinez, Andres W. Martinez

Characterization of the Carbonic Anhydrase Superfamily: Paths Towards Improved Carbon Capture. **Sophia Catania**, Javin Oza

Constructing a QSAR-Based Model to Help Detect GHB. **Sarah Chang**, **Zane Fink**, Erik Sapper

Structure-Property Models for Transport in Evolving Polymer Matrices. **Miles Brockbank**, **Liam Alsbury**, Erik Sapper

Employing Computational Modeling for Enzymatic Polymer Degradation. **Jordan Ford**, **Giselle Richmond**, **William Lawrence**, Erik Sapper

Development of Novel Dual Sequential Release Hydrogel: Synthesis and Rheological Studies. **Paul Contos**, **Daniel Lopez**, Sandra Ward

Hydrogelation and Release Kinetics of a Novel Dual Sequential Release Hydrogel. **Magnus Damborg**, **Graciela Velazquez**, Sandra Ward

Biosynthesis of TLN-05220, a Polyketide Featuring a Unique Piperazinone Ring. **Allie Dowdy**, **Megan Hasbrooke**, **Natalie Lubinski**, **Kate Weckwerth**, Katharine Watts

Advancing Molecular Biology Curriculum with Fluorescent and Chromogenic Proteins. **Allie Dowdy**, **Megan Hasbrooke**, **Natalie Lubinski**, **Kate Weckwerth**, Katharine Watts

Testing Substrate Scope of Wildtype and Engineered Non-Ribosomal Peptide Synthetases. **Sam Catania**, **Sam Stabinksy**, Katharine Watts

Isothermal Titration Calorimetry of the HucR-DNA Binding Interaction. **Katrina Culman**, **Andrew Sayers**, Steven Wilkinson

Exploring the Effects of Metals and Oxidizing Agents on PaeR-DNA Interactions. **Andrew Sayers**, **Katrina Culman**, Steven Wilkinson

Catalysis Enabled Chemical Recycling of Plastic Waste. **Aravind Selvam**, **Makisig Velasquez**, Shanju Zhang

Active Functional Coatings via Covalent Bonding. **Trevor Chen**, Jason Lin, Shanju Zhang

Liquid Crystal Templated Polymer Membranes for Wastewater Treatment. **Rosa-Lynn S. Flaherty**, Max Solorio, Ian S. Igleheart, Joseph Fairchild, Shanju Zhang

Lunch: 12:00 pm – 1:00 pm — Bldg. 180, 4th floor atrium

Oral Session 2: 1:30 pm – 3:00 pm — Building 181, Room 102

[Title, **Presenting Author(s)**, Advisor(s)]

1:30 pm: Session Begins

1:40 pm: Synthesis of Derivatives of Diindenopleiadiene. **Robert Satterwhite**, **Belline Davidson**, Derik Frantz

1:52 pm: Small Changes, Big Impacts: Exploring Polymers in the Learn by Doing Lab. **Sierra Sanchez**, **Anna Delmas**, **Jane Dormady**, Leslie S. Hamachi

2:04 pm: Light and Brimstone: A Study into the Photochemistry of Dithiocarboxylates. **Riya Nigudkar**, **Karalee Webb**, David F. Zigler, M. Taylor Haynes III

2:16 pm: Testing Substrate Scope of Wildtype and Engineered Non-Ribosomal Peptide Synthetases. **Sam Catania**, **Sam Stabinksy**, Katharine Watts

2:28 pm: Synthesis of Asymmetric Ester-Amide Alkynes Using Benign Reagents. **Jacob Landa**, Daniel A. Bercovici

2:40 pm: Symposium Closing Remarks

A special thanks goes out to our Frost Student Social Committee: Emma Langworthy and Emeline Robbins

We gratefully acknowledge support from the William and Linda Frost Fund in the Cal Poly Bailey College of Science and Mathematics