# The Frost Symposium, Summer 2025

Cal Poly – Department of Chemistry and Biochemistry
Friday, August 15th, 2025 –– 9:00 am – 1:00 pm

**Oral Session 1: 9:00 am – 10:10 am**
Building 180, Room 101

**Oral Session 2: 10:22 am – 11:20 am**
Building 180, Room 101

**Poster Session: 11:30 am – 1:00 pm**
Building 180, 4th Floor Atrium

**Lunch: 12:00 pm – 1:00 pm**
Building 180, 4th Floor Atrium

**scan here for digital program**

*A special thanks goes out to our Frost Student Social Committee:*
*Elizabeth Gunver, Ruthie Hansard, and Victor Sepulveda*

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

## Oral Session 1: 9:00 am – 10:10 am  Building 180, Room 101

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

9:00 am: Session Begins

9:10 am: Session 1 Opening Remarks

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

Philip Bailey – Director of the Frost Fund

9:22 am: Birch Reductions of Arylcyclopropanes.
**Amanda Sie**, **Elizabeth Gunver**, Eva Voss, Arianna Ortiz, Eric J. Kantorowski

9:34 am: NMR Studies Towards the Rational Development of New Imine-Linked COF Syntheses.
**Ava Durbin**, Makisig Velasquez, Winston Untung, Martin Nelson, Leslie Hamachi

9:46 am: Probing the Lewis Acidity of Boronate Ester COF Colloid Surfaces with Fluorescent Lewis Adducts.
**Sofia Valencia**, Hannah Negri, Jackson Arroyo, Leslie Hamachi

9:58 am: Chronometric Biosensors.
**Julia Thomas Niec**, **Analisa Perez**, Luke Desouza-Lawrence, Nathaniel Martinez, Andres Martinez

10:10 am: *BREAK (12 minutes)*

## Oral Session 2: 10:22 am – 11:20 am  Building 180, Room 101

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

10:22 am: Session 2 Opening Remarks

John Hagen – Chair of the Department of Chemistry and Biochemistry

10:28 am: Exploring the Effects of Synthetic Conditions on Inverse Opal Structural Color Pigments.
**Elijah Hannaford**, Kyle Liston, Justin Hancock

10:40 am: Investigating the Thiol-induced Fragmentation of Ester-Aryl Ylidenenorbornadienes (YNDs).
**Danilo Alamillo**, **Jacob Landa**, **Michael Cunningham**, Daniel Bercovici

10:52 am: Investigating the Thiol-induced Fragmentation of Ester-Amide Ylidenenorbornadienes (YNDs).
**Jake Bellamah**, **Hannah Gamsaragan**, **Adam Schulte**, Sonia Patil, Shawn Larson, Daniel Bercovici

11:04 am: What can you do with lasers, 10,000 volts, and a cursed functional group? Mechanistic investigations of dithiocarboxylates' photochemistry.
**Karalee Webb**, Lizzie Manis, M. Taylor Haynes, David F. Zigler

11:16 am: Oral Session Concluding Remarks

## Poster Session: 11:30 am – 1:00 pm  Bldg. 180, 4th floor atrium

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

Optimization of Automated Nutrient Analyses for Oceanic and Fresh Water.
**Blake Maxon**, Emily E. Bockmon

Pōrea Depth Profiles in Tetiaroa, French Polynesia.
**Emma Kurata**, Sasha Evans, Kara Fitzsimmons, Lusiano Kolokilag, Vaitea Izal, Hina Patii, Joan Robson, Emily E. Bockmon, David Long

Freshwater from the Paopao River Alters the Chemistry of Cook's Bay, Mo'orea.
**Cara Pelling**, Skylar Collings, Sasha Evans, Kara Fitzsimmons, Avery Hoyt, Emma Kurata, Shawn Larson, Ruben Moulton-Huber, Sasha Naughton, Eli Newman, Maalav Panchal, Zach Peterson, Mia Ramos, Cole Taylor, Emma Thorne, Gavin Wong, Emily E. Bockmon, David Long

Spatial Patterns of Nutrient Enrichment around Teti'aroa Atoll: Seabird Influence on Coastal Chemistry.
**Skylar Collings**, Avery Hoyt, Shawn Larson, Ruben Moulton-Huber, Eli Newman, Gavin Wong, David Long, Emily Bockmon

Chemical and Physical Drivers of Staghorn Coral Locations on Tetiaroa Atoll, French Polynesia.
**Sasha Naughton**, **Mia Ramos**, **Cole Taylor**, Emma Thorne, Tuterai Apuarii, David Long, Emily Bockmon

Uncovering the Chromatin-Based Moonlighting Roles of Threonine Metabolic Proteins.
**Chloe Khokhar**, **Sage Byerrum**, **Tyler Hendrick**, Adi Netanel, Jennifer Chik

Organic Acid Catalysts' Effects on Imine Formation and Condensation Kinetics Relevant to COF Synthesis.
**Martin Nelson**, **Jeffrey Johnson**, Erin Wang, Winston Untung, Cole Nakamoto, Ava Durbin, Leslie Hamachi

Analyzing the Effect of Sterically Hindered Carboxylic Acid Catalysts in Colloidal COF-300 Synthesis using Scanning Electron Microscopy.
**Winston Untung**, **Makisig Velasquez**, Zoe Jackson Delos Angeles, Alexis Mojica, Alison Chew, Leslie Hamachi

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

Developing Maleimide-functionalized Macrocycles for MRI Biosensors.
**Emma Pourshah**, Carson Hasselbrink

Birch Reductions of Substituted 1-Arylbicyclo[3.1.0]hexanes.
Eva Voss, **Arianna Ortiz**, **Amanda Sie**, **Elizabeth Gunver**, Eric J. Kantorowski

Heavy Metal Detection Using Low-Cost Portable Diagnostic Devices.
**Gabriel Ribeiro**, **Jillian Yujuico**, Nathaniel Martinez, Andres Martinez

Stabilization of Enzymes on Paper-based Sensors.
**Danica Brinkman**, Christy Liu, Habiba Abo Ismail, Olivia Martinez, Nathaniel Martinez, Andres Martinez

Advancing VOC Analysis Using Benchmark Paint Formulation Components.
**Miles Brockbank**, **Wyatt Goldman**, Erik Sapper

Investigation of Flexible Bio-Based Filaments for 3D Printing Interlaced and Lattice Structures via Fused Filament Fabrication (FFF).
**Phoebe Lui**, John Urrutia, Vidya Schalk

Thiolated Polyethylene Glycol (PEG) Hydrogel Coatings for Sustained Gentamicin Delivery on Polydimethylsilane (PDMS) Surfaces.
**Yulia Polischuk**, **Paul Contos**, Sandra Ward

Synthesis and Characterization of Mono-Functionalized Polyethylene Glycol.
**Sabrina Swartz**, **Evelyn Jaminet**, Sandra Ward

Synthesis of Asymmetric Disulfides and Optimizationof Thiol Synthesis.
**Iris Liang**, **Carson Krueckel**, Sandra Ward

Structure Elucidation of Purple Pigments from Micromonospora echinospora.
**Megan Wong**, Katharine Watts

Elucidating Protein-protein Interactions Involved in Type I and Type II Polyketide Synthase Interplay in TLN-05220 Biosynthesis.
**Sam Stabinsky**, Katharine Watts

Investigation of Ancient Microbes' Antibiotic Production and Resistance.
**Safiay Rufino**, **Kaitlyn Calligan**, Rachel Johnson, Katharine Watts

Utilizing CAPTURE Cloning to Investigate Tailoring Steps in TLN-05220 Biosynthesis.
**Emma Boykova**, **George Stein**, Rachel Johnson, Katharine Watts

Mechanochemical Depolymerization of Poly(α-methylstyrene) and Poly(methyl methacrylate).
**James Sondgroth**, **Zane Fink**, Sarah Zeitler

Mechanochemical Synthesis of Polycaprolactone and Polylactic Acid via Ring Opening Polymerization.
**Christian Robles**, **Ruthie Hansard**, Sarah Zeitler

Polymer Binders for Efficient Ion-Electron Transport.
**Noel Cevallos**, Tzu-Chieh Chan, Shanju Zhang

Lyotropic Liquid Crystalline Membranes for Water Filtration.
**Melina Murai**, **Rachel Abate**, Shanju Zhang

Light & Brimstone: Structure and Electronic Properties of Substituted Aryl-Dithiocarboxylates.
**Mohnish B. Rana**, **Colin F. Krock**, David F. Zigler, M. Taylor Haynes

Payload Delivery with Quantum Dots: Mechanistic Models of Quantum Dot Quenching by Dithiocarboxylates.
**Sean Riley C. Ramos**, **Varsha Chandrasekaran**, **Isabella Landeros**, M. Taylor Haynes, David F. Zigler