2022 Graduate Research Symposium

July 9 - 12, 2022
DOC Graduate Research Symposium
University of California, Santa Barbara, CA, July 9-12, 2022

SATURDAY, JULY 9
2:00 pm - 4:30 pm    Arrival and Check-in
2:30 pm - 4:30 pm    Industrial Poster Session – Corwin Ballroom
4:30 pm - 5:45 pm    Registration and Pizza – Corwin Lobby and Lagoon Plaza

SATURDAY EVENING  Presiding:  Gary Molander, University of Pennsylvania
5:45 pm - 6:00 pm    Welcome – Corwin Ballroom
6:00 pm - 6:50 pm    Omar Yaghi, UC Berkeley
                      The chemistry of covalent organic frameworks
6:50 pm - 7:10 pm    Andre Sanchez
                      University of California, Berkeley
                      Taming Shapeshifting Anions: Total Synthesis of Ocellatusone C
7:10 pm - 7:30 pm    Andrew Kelleghan
                      University of California, Los Angeles
                      Intercepting Strained Cyclic Allenes with Transition Metal Catalyst
7:30 pm - 7:50 pm    Rebecca Joy Ulrich
                      University of Illinois at Urbana Champaign
                      Exploring the Physiochemical Properties Governing Compound Efflux In Gram-Negative Bacteria
7:50 pm - 8:10 pm    Madeleine Deem
                      University of British Columbia
                      Ring Walking As A Regioselectivity Control Element In Pd-Catalyzed C-N Cross Couplings
8:10 pm - 8:30 pm    Cecilia Hendy
                      Emory University
                      CO₂ Radical Anion: A Potent Single Electron Reductant
8:45 pm - 11:30 pm   Reception and Poster Session 1 – Corwin Ballroom

SUNDAY, JULY 10  Presiding:  P. Andrew Evans, Queen’s University
9:00 am - 9:40 am    Chuck Frazier – Apeel Sciences
                      From Idea to Product: Leveraging Chemistry and Materials to Reduce Food Waste
9:40 am - 10:00 am   Dylan E. Holst
                      The University of Wisconsin-Madison
                      The Dictation Pool Strategy for Diverse Alkene Functionalization
10:00 am - 10:20 am  Quinn Edmondson
University of California, San Francisco
A Synthetic Platform For Minimal Macrolide Antibiotic Pharmacophores

10:20 am - 10:40 am Coffee Break – Corwin Ballroom

10:40 am - 11:30 am Hosea Nelson, CalTech
Twists and Turns Along the Path of Reactivity-Driven Methods Development

11:30 am - 11:50 am Victoria Marando
Massachusetts Institute of Technology
Biosynthetic Gylcan Labeling: Developing Chemical Tools To Study Cell Surface Carbohydrates

11:50 am - 12:10 pm Feng Yang
Boston University
Unified, Asymmetric Total Synthesis of the Asnovolins and Related Spiromeroterpenoids: A Fragment Coupling Approach

12:30 pm - 2:30 pm Lunch and Poster Session 1 – Lagoon Plaza and Corwin Ballroom

WORKSHOPS – Gary Molander

WORKSHOP 1: Academic Support – Corwin Ballroom

2:30 pm – 3:00 pm Paul Blakemore-NSF
Chemistry at the National Science Foundation: Our Mission, Priorities, Programs, and Modus Operandi

3:00 pm – 3:30 pm Stephen Ritter – ACS Publications
The Art of Scientific Publishing

3:45 pm - 5:15 pm WORKSHOP 2 Academic Life – Corwin Ballroom
Andy Evans (Queen’s) and Gary Molander (UPenn)
Paul Blakemore (Oregon State University), Hosea Nelson (CalTech), Omar Yaghi (UC Berkeley), Andy Mitchell (Illinois Stat), Todd Hyster (Cornell)

5:15 pm - 6:30 pm Dinner – Betty Ellings Wells West Terrace at the Club

SUNDAY EVENING Presiding: Angie Angeles, Gilead Sciences

6:30 pm – 7:10 pm Sarah J. Ryan, Eli Lilly– Corwin Ballroom
Process Development for a Small Molecule Oncolytic

7:10 pm – 7:30 pm Evan Romero
University of Michigan
Chemoenzymatic Total Synthesis Enabled by Non-Heme Iron Enzymes

7:45 – 9:30 pm WORKSHOP 3: Industrial Life

Please see the assignments in the tables at the end of the document.
MONDAY, JULY 11  Presiding:  Tom Pettus, UCSB

9:00 am - 9:50 am  Todd Hyster, Cornell University – Corwin Ballroom
Photoenzymatic Catalysis - Using Light to Reveal New Enzyme Functions

9:50 am - 10:10 am  Laura Alonso
University of Illinois at Chicago
Solvent, Substituent, and Catalyst Effects on Strained Electrocyclizations

10:10 am - 10:30 am  Vincent Ash Pistritto
University of North Carolina
Cation Radical Accelerated Nucleophilic Aromatic Substitution of Unactivated Fluoroarenes:
Methodology and Mechanism

10:30 am - 10:50 am  Coffee Break – Corwin Ballroom

10:50 am - 11:30 am  Michelle Rogers, Cargill BioIndustrial
The Unexpected Path: Where saying YES to development opportunities has lead

11:30 am - 11:50 am  Md Mubarak Hossain
University of Arizona
Photocatalytic α-arylation of Carbonyl Compounds

11:50 am - 12:10 am  Scott Niman
University of California, Irvine
Efforts Towards the Total Synthesis of Neoamphilectane

12:15pm – 12:30pm  Group Photograph

12:30 pm - 2:30 pm  Lunch and Poster Session 2 – Lagoon Plaza and Corwin Ballroom

MONDAY AFTERNOON  Presiding:  P. Andrew Evans, Queen’s University

2:30 pm - 3:10 pm  Tay Rosenthal, Corteva – Corwin Ballroom
How does a chemist help feed the world? Discovery & development of natural product inspired
small molecules

3:10 pm - 3:30 pm  Sara Dibrell
California Institute of Technology
Progress Toward the Synthesis of Cassiabudanol

3:30 pm - 4:00 pm  Coffee Break – Corwin Ballroom

4:00 pm - 4:20 pm  Yuting Ma
Cornell University
Photoswitching Radical and Cationic Polymerizations for Tuning Thermoset Properties

4:20 pm - 4:40 pm  Xin Gu
Massachusetts Institute of Technology

Synthesis of Trans-diequatorial Diols Through Stereochemical Editing Strategy

4:40 pm - 5:00 pm  Brian Spinello
University of Texas at Austin

Carbonyl Addition From The Alcohol Oxidation Level: Carbon-Carbon Bond Construction via Hydrogen Auto-Transfer

5:00 pm - 5:20 pm  Zohaib Siddiqi
University of Illinois

An Electrochemical Dearomatization of Polystyrene

5:30 pm - 8:30 pm  Dinner

8:30 pm  Drinks and Games: TBD

TUESDAY, JULY 12  Presiding: Gary Molander, University of Pennsylvania

9:00 am - 9:50 am  Andy Mitchell - Illinois State University – Corwin Ballroom

Oxidopyrylium-Based [5+2] Cycloadditions: Old Roads, New Pathways

9:50 am - 10:10 am  Weizhe Dong
University of Pennsylvania

Photoredox Catalysis in Installation of Unique Building Blocks

10:10 am - 10:40 am  Coffee Break – Corwin Ballroom

10:40 am - 11:00 am  Maria Morales Colon – University of Michigan

Suzuki-Miyaura Cross-Couplings At Low Palladium Loadings

11:00 am - 11:20 am  Thi Tran
University of California Santa Barbara


11:20 am - 11:40 am  Ridge Michael P. Ylagan
Queen’s University

Enantioselective Rhodium-Catalyzed Pauson-Khand Reactions of 1,6-Choroenynes with 1,1-Disubstituted Olefins

11:40 am – 12:00 pm  Jackson Hernandez
University of Rochester

Synthesis of Spirocyclic Isoindolones Using an Alkynyl Prins/Oxidative Halo-Nazarov Sequence

12:00 pm - 1:00 pm  Lunch – Lagoon Plaza

12:00 pm - 2:00 pm  Check out

2:00 pm  Depart
SATURDAY, JULY 9: POSTER SESSION 1

1. Swetha Jos – Virginia Tech
   Transition Metal-Free Regio- and Stereo-Selective Trans Hydroboration of 1,3-Diynes: A Phosphine Catalyzed Access to Borylated 1,3-Enynes

2. Joseph Kincaid – University of South Carolina Beaufort
   Applications of Micellar Catalysis Toward Organic Transformations in Water

3. Cheng Peng – University of Chicago
   A Concise Total Synthesis of (+)-Waihoensene Guided by Quarternary Center Analysis

4. Chloe G. Williams – California Institute of Technology
   Selective C-C Bond Forming Reactions of Vinyl Carbocations

5. Alexia Kim – California Institute of Technology
   Emantioselective Syntheses of Tetrahydroisoquinolines via Ir-Catalyzed Asymmetric Hydrogenation

6. Ke Zhao – University of South Carolina Beaufort
   Rational Design on Bifunctional Ligand in Gold Catalysts

7. RishabIyer – University of California, Davis
   Scalable and Modular Total Synthesis of Ibogaine and Related Alkaloids

8. Maj Krumberger – University of California, Irvine
   Synthesis And Stereochemical Determination of Novo29, A New Peptide Antibiotic

9. Elaine Christy Reichert – Massachusetts Institute of Technology
   Development of New Catalysts For Pd-Catalyzed C-N Cross-Coupling

10. Jessie Gudorf – Indiana University
    More Efficacious Medicine: Antibiotics and Antidotes

11. Jack Sharland – Emory University
    Developing Practical Rhodium Carbene Chemistry for Industrial Applications

12. Ashley Nguyen – San Diego State University
    Total Synthesis of Macrocyclic Polypeptide Antibiotics

13. Grace Trammel – Indiana University
    Arylboration for the Synthesis of Borylated N-Heterocycles

14. Kerry Jones – University of California, Berkeley
    Efforts Toward the Synthesis of Polycyclic Natural Products: Xishacorene B and Various Monoterpene Indole Alkaloids

15. Adam Pancoast – University of Utah
    Investigation of the Structure-Solubility Relationships of 2,2’-Bipyrimidines for Redox Flow Batteries

16. Sarah Dishman – University of California, Davis
    Divergent Stereochemical Outcomes in the C-H Insertion of Donor/Donor Carbenes into Stereogenic Centers and the Asymmetric Synthesis of Dihydrobenzoxanthones

17. Samantha Ashley Ottavi – University of North Carolina
    PpT Inhibitors of Mycobacterium Tuberculosis

18. Lucas W. Howell – University of Iowa
    Stereocontrol Tactics for 1,3- and 1,5-Polyols in an Approach to Bastimolide A
19. Zengrong Wong – University of California, Berkeley
Revisiting the Bonding Model for Gold(I) Species: The Importance of Pauli Repulsion Revealed in a Gold (I)-Cyclobutadiene Complex

20. Kevin Walsworth – San Diego State University
New Generation of Hepatitis C IRES Ligands and the Total Synthesis of the Marine Natural Product Palmyramide A

21. Olamide Olaoluwa Idowu – University of Delaware
Iridium Catalyzed Ortho C–H Borylation of Nitro-Arenes

22. Jacob Norman – Montana State University
Pd-Catalyzed Site-Selective Cross-Couplings of Dichloroazines Under Ligand Control

SUNDAY, JULY 10: POSTER SESSION 2

23. Grace A. Lutovsky – The University of Wisconsin-Madison
Photoactive Base Metal Carboxylates Enable A Versatile Platform for C-N, C-O and C-C Bond Formation

24. Yuk Fai Wong – University of South Carolina Beaufort
Conjugate Addition of Imines and Imine-like Nucleophiles to Ortho-Quinone Methides

25. Thomas Polaske – University of Wisconsin-Madison
Discovery, Characterization, And Syntheses Of Potent Small Molecule Virulence Inhibitors Against The Notorious Human Pathogen Staphylococcus aureus

26. Shubhendu Karandikar – Portland State University
Orbital Analysis of Bonding in Diarylhalonium Salts and Relevance To Periodic Trends in Structure and Reactivity

27. Adam Jamil Zahara – University of North Carolina
Dihalomucononitriles As Powerful Reagents in Complex Molecule Synthesis

28. Isabelle Leibler – Princeton University

29. Cory Ludwig – University of Iowa
Photocatalytic Activation of Alcohols and the Progress Towards the Synthesis of Fraxinellonone

30. Jason Saway – Seton Hall University
Photoacid-Catalyzed C-C and C-O Bond Formation and the Synthesis of Triazole-Containing Bis(indyl)methanes

31. Minhua Nie – North Carolina State University
Design and Synthesus of Novel Aza-sugar Clindamycin Antibiotics

32. Soumya Kumar Sinha – Indian Institute of Technology, Bombay
Ligand Enabled C-H Thioarylation

33. Avery Kathleen Smith – University of Georgia
A Dearomative (3+2) Cycloaddition Enabled by Chromium Photocatalysis

34. Katie Rykaczewski – University of Michigan
Synthesis and Applications of Strained Heterocycles

35. Gavin Rustin – University of South Mississippi
Investigation of N-Sulfonyliminium Ion Cyclization Reactions for Piperidine Ring Synthesis

36. Tyler Ross McDonald – University of Toronto
   Synthesis of 3-borylated Cyclobutanols From Epihalohydrins or Epo

37. Jacob Desmond – Indiana University
   Towards the Total Synthesis of Pilosanone C

38. Paul Russell Carlson – University of California, Irvine
   Efforts Towards A Total Synthesis of Artatrovirenols A and B

39. Jenna Leigh Miller – University of Pittsburgh
   Oxoammonium Ion-Medicated Oxidative C-H Bond Functionalization in the Synthesis of Nitrogen-Containing Heterocycles

40. Cameron Twitty – University of Delaware
   Diversifying Amino Acids and Peptides via Deaminative Reductive Cross-Couplings

41. Haoran Zhu – University of Illinois at Chicago
   Novel N-Heterocycle Synthesis from Nitroarenes by Single Electron Transfer

42. Jingzhe (Bill) Cao – Princeton University
   Photoenzymatic Asymmetric C-C and C-N Bond Formation and Enzymatic Dynamic Kinetic Resolution of α-Aminoketone

43. Lilliana Gallegos – Colorado State University
   Reaction optimization combining mechanistic and statistical models to make synthetic chemistry more predictable

44. Adrian Demerritte – Emory University
   Total Synthesis and Biological Evaluation of Peniciaculin A and Analogs

For interactive campus map: https://admissions.sa.ucsb.edu/sites/default/files/2020-09/Self_Guided_Tour_Map.pdf
### DOC Graduate Research Symposium
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Speakers
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Andy Mitchel, Illinois State University
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Michelle Rogers, Cargill
Tay Rosenthal, Corteva
Sarah Ryan, Lilly
Omar Yaghi, University of California, Berkeley

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