

2021

Graduate Research Symposium



November 18 - 21, 2021

DOC Graduate Research Symposium
University of New Mexico, Albuquerque, NM, November 18-21

THURSDAY, NOVEMBER 18

- 2:00 pm - 4:30 pm Arrival and **Check-in**
- 2:30 pm - 4:30 pm Industrial Poster Session – **Ballroom Foyer**
- 4:30 pm - 5:45 pm Registration and Pizza – **Ballroom Foyer**

THURSDAY EVENING *Presiding: Gary Molander, University of Pennsylvania*

- 5:45 pm - 6:00 pm **Welcome – Ballroom B&C**
- 6:00 pm - 6:50 pm **Oswaldo Gutierrez, Texas A&M**
Recent Advances in Fe-Catalyzed Radical Cascades/Cross-Couplings
- 6:50 pm - 7:10 pm **Fatimat Badmus**
Louisiana State University
Expedient Synthesis of Functionalized Tetrahydrobenzofurans and Related Heterocycles via Silyloxyallyl Cations
- 7:10 pm - 7:30 pm **Benjamin Bergstrom**
University of California, Davis
The Asymmetric Total Synthesis of Panowamycins by C–H Insertion with Donor/Donor Carbenes
- 7:30 pm - 7:50 pm **Caroline Brennan**
University of California, Irvine
New platforms for Multi-Component Bioluminescence Imaging
- 7:50 pm - 8:10 pm **Jason Chari**
University of California, Los Angeles
Aryne Chemistry "On-the-Complex"
- 8:10 pm - 8:30 pm **Stanna Dorn**
Indiana University
Cu/Pd-Catalyzed Alkenylboration: Rapid and Modular Access to a Versatile Double-Allylation Reagent
- 8:45 pm - 11:30 pm Reception and **Poster Session 1 – Ballroom Foyer**

FRIDAY, NOVEMBER 19 Presiding: P. Andrew Evans, Queen's University

9:00 am - 9:40 am **Christa Chrovian, J&J – Ballroom B&C**

Design, Synthesis and Preclinical Evaluation of GluN2B-Selective NMDA antagonists for the Treatment of Mood Disorders

9:40 am - 10:00 am **Jacob Ganley**

Princeton University

Anti-Markovnikov Hydroamination of Unactivated Alkenes with Primary Alkylamines

10:00 am - 10:20 am **Alexandra Gollither**

New Mexico State University

Complementary Strategies for Natural Product Synthesis

10:20 am - 10:40 am Coffee Break – **Ballroom Foyer**

10:40 am - 11:30 am **Christina White, University of Illinois, Urbana-Champaign**

C-H Oxidation for Late Stage Functionalization

11:30 am - 11:50 am **James Herbort**

Ohio State University

Cobalt-Catalyzed Remote Transfer Dehydrogenation via Triple HAT Cascade

11:50 am - 12:10 am **Kirsten Hewitt**

University of California, Irvine

Nickel-Catalyzed Cross-Electrophile Coupling and Domino Reactions of Sulfonamides

12:15 - 12:30 pm **Group Photograph**

12:30 pm - 2:30 pm Lunch and **Poster Session 1 – Ballroom Foyer**

WORKSHOPS – Gary Molander

2:30 pm - 3:10 pm **WORKSHOP 1: Academic Support – Ballroom B&C**

Laura Anderson, NSF

What I Wish I'd Known about the NSF

3:15 pm - 4:30 pm **WORKSHOP 2: Alternate Careers – Ballroom B&C**

Shaughnessy Naughton – 314 Action

Out of the Lab, Into Public Office

Andrew Phillips – Cormorant Asset Management

Grinta – The Glue of Science and Entrepreneurship

4:30 pm - 5:15 pm **WORKSHOP 3: Academic Life – Ballroom B&C**

Andy Evans (Queen's), Gary Molander (UPenn)

Laura Anderson (University of Illinois, Chicago), Christina Cooley, (Trinity University), Christina White (UIUC), Osvaldo Gutierrez (Texas A&M), Alison Narayan (Michigan), Brett Fors (Cornell)

5:15 pm - 6:30 pm Dinner – **Ballroom A**

FRIDAY EVENING Presiding: Angie Angeles, Gilead Sciences

6:30 pm - 7:10 pm **Dan Bailey - Takeda**
Beyond Organic Solvents: Synthesis of a 5-HT₄ Receptor Agonist in Water

7:10 pm - 7:30 pm **Muhammad Imran**
 Lehigh University
N-Substituted Open-shell Bisphenalenyls: Synthesis, Optoelectronic Properties and Applications

8:00 - 9:30 pm **WORKSHOP 4: Industrial Life**

Group A (Angeles)	Group B (Evans)	Group C (Molander)
<i>Last Name Ahlquist to Hewitt</i>	<i>Last Name Hurlow to Nistanaki</i>	<i>Last Name Onyeagusi to Williams</i>
Santa Ana A	Santa Ana B	Acoma A
Barbara Czako – Nurix Rebecca Green – BMS Bryan Laforteza –Janssen Mark Nilson – GSK Yeon-Hee Lim – Merck Andreea Argintaru–Axalta Chuck Frazier – Apeel Dan Bailey – Takeda Zachary Buchan –Corteva Elizabeth Swift – Janssen David Snead– Mirati	Chris Senanayake – TCG Jamie McCabe Dunn – Merck Nicole Goodwin – GSK Tatiana Hodgson – Nurix Thomas Greshock – Merck Nathan Ross – Adesis Evan Stydhuhar – Incyte David Fisher – Apeel Christa Chrovian – Janssen Ving Lee – Adesis Thorsten Rosner – J-Star	Katelyn Billings – Relay Steve Wisniewski – BMS Brahma Ghosh – Janssen Lisa Marcaurelle – GSK Naoko Ichiishi – Takeda Jennifer Obligacion – Merck Todd Nelson – J-Star Joe Armstrong – TCG Andy Phillips – Cormorant Suele Vasquez – Corteva Eric Dowdy - Gilead

9:30 pm - 11:45 pm **Reception and Poster Session 2 – Ballroom Foyer**

SATURDAY, NOVEMBER 20 Presiding: Steve Wisniewski, BMS

9:00 am - 9:50 am **Alison Narayan, University of Michigan – Ballroom B&C**
Biocatalysis and Complex Molecule Synthesis

9:50 am - 10:10 am **Tanner Jenkins**
 The Scripps Research Institute

*Low Valent Tungsten Redox Catalysis Enables New Site-Selectivity in Chain Walking
Functionalization*

10:10 am - 10:30 am **Raphael Kim**

University of Delaware

*Development of a Nickel-Catalyzed Atropselective Ullmann Coupling en route to Chiral Biaryl
Bisphosphine Ligands*

10:30 am - 10:55 am Coffee Break – **Ballroom Foyer**

10:55 am - 11:35 am **Andreea Argintaru, Axalta**

Driving Innovations in Coatings Through Chemistry

11:35 am - 11:55 am **Gen Li**

Massachusetts Institute of Technology

*Organophosphorus-Catalyzed Reductive Transformation of Nitro Compounds via PIII/PV
Redox Couple*

11:55 am - 12:15 am **Zhanhao Liang**

North Carolina State University

Progress Toward the Total Synthesis of Ansalactam A

12:15 pm - 2:30 pm Lunch and **Poster Session 2 – Ballroom Foyer**

SATURDAY, AFTERNOON Presiding: P. Andrew Evans, Queen's University

2:30 pm - 3:20 pm **Brett Fors – Cornell University – Ballroom B&C**

Development and Applications of New Synthetic Strategies for Polymer Science

3:20 pm - 3:40 pm **Kate Nicastrì**

University of Wisconsin-Madison

*Progress Toward the Total Synthesis of Jogyamycin: an Ichikawa/Winstein Rearrangement
Strategy*

3:40 pm - 4:00 pm Coffee Break – **Ballroom Foyer**

4:00 pm - 4:20 pm **Sepand Nistanaki**

University of California, Los Angeles

Dewar Heterocycles as Strategic Intermediates in Organic Synthesis

4:20 pm - 4:40 pm **Jesse Panger**

University of Illinois at Urbana-Champaign

Enantioselective, Lewis Base-Catalyzed Sulfenofunctionalization of Alkenes

4:40 pm - 5:00 pm **Emily Pinter**

Indiana University Bloomington

Leveraging N–F Bonds for Directed Csp³–H Functionalization

5:00 pm - 5:20 pm **Savannah Post**
Emory University
Total Synthesis of the Reported Structure of Cahuitamycin A and Isomers

5:30 pm - 8:30 pm Dinner

8:30 pm Drinks and Games: **TBD**

SUNDAY, NOVEMBER 21 Presiding: Gary Molander, University of Pennsylvania

9:00 am - 9:50 am **Christina Cooley – Trinity University – Ballroom B&C**
Fluorogenic Polymerization Approaches to Signal Amplification and Detection

9:50 am - 10:10 am **Evgeniya Semenova**
University of Florida
Exploration of Competitive Olefin Metathesis of Bicyclic Tetraenes Yields an Unexpected Thermal Rearrangement

10:10 am - 10:40 am Coffee Break – **Ballroom Foyer**

10:40 am - 11:00 am **Zican Shen**
Yale University
Light-mediated Epimerization of Saturated N-Heterocycles

11:00 am - 11:20 am **Cooper Taylor**
University of Chicago
The Enantioselective Total Synthesis of Laurendecumallene B

11:20 am - 11:40 pm **Sean Treacy**
Columbia University
Novel Methods for C(sp³)-H Alkylation via Photoredox Catalysis

11:40 am - 12:00 pm **Hannah Vonesh**
University of Michigan
Mechanistic Elucidation of Carbonyl-Olefin Metathesis via Natural Abundance Kinetic Isotope Effects (KIEs)

12:00 pm - 1:00 pm Lunch – **Ballroom Foyer**

12:00 pm - 2:00 pm Check out

2:00 pm Depart

THURSDAY, NOVEMBER 18: POSTER SESSION 1

- 1. Grace Ahlqvist – Massachusetts Institute of Technology**
Progress Towards a Large-Scale Synthesis of Molnupiravir, a Potential COVID-19 Therapeutic
- 2. Olivia Bercher – University of Delaware**
Deaminative Reductive Methylation of Alkylpyridinium Salts
- 3. Shruti Biyani – Purdue University**
High Throughput Tools Directed Telescoped Continuous Flow Synthesis of an Alkynyl Naphthyridine Anti-Cancer Agent, HSN-608
- 4. Sooyun Choi – Yale University**
Organocatalyzed Asymmetric Cyclodehydration to Form Atropisomeric N-Aryl-1,2,4-Triazoles
- 5. Ryan Davison – University of California, Irvine**
A Stereoselective Strategy for Unnatural Amino Acid Synthesis
- 6. Ashley DeYong – Indiana University**
Automated Flow Synthesis of Protected O-Linked Glycosylated Amino Acids
- 7. Samuel Etkind – Massachusetts Institute of Technology**
Symmetric Redox Flow Batteries Enabled by Thianthrene Based Materials
- 8. Xin Gao – Princeton University**
Stereoselective Radical Cyclizations Catalyzed by 'Ene'-Reductases
- 9. Qiwen Gao – University of Illinois at Chicago**
Discovery and Optimization of Autophagy Inhibitors for Evaluation as Potential Cancer Therapeutics
- 10. Ruslan Gibadullin – University of Wisconsin-Madison**
Targeting G Protein-Coupled Receptors and T Cell Receptors with α/β -Peptides
- 11. Evan Hurlow – University of California, Los Angeles**
Prodiginines in Two Parts: An Unusual Photorearrangement en route to Marineosin A and Scaffold-Assisted Co-Crystallization of RNA-Binding Molecules
- 12. Elizabeth Jones – Georgia Institute of Technology**
Biomimetic Cyclizations in Pursuit of Marine Natural Products
- 13. Lily Klapper – Indiana University**
Total Synthesis of Macrocyclic Polypeptide Antibiotics
- 14. Gaurav Kudalkar – University of Nebraska**
Exploiting the CaADH Enzyme for Dual Stereocontrol and Cross-Coupling Chemistry for Structural Diversity—Access to Novel Taxotere Side Chains
- 15. Sii Hong Lau – Princeton University**
Ni/Photoredox-Catalyzed Enantioselective Cross-Electrophile Coupling of Styrene Oxides and Aryl Iodides
- 16. Wan-Chen Lee – Boston College**
Asymmetric Radical Cyclopropanation of Dehydroaminocarboxylates: Stereoselective Synthesis of Cyclopropyl α -Amino Acids
- 17. Xingue Li – University of California, Irvine**
An Improved Turn Structure for Inducing β -Hairpin Formation in Peptides

FRIDAY, NOVEMBER 19: POSTER SESSION 2

18. **Yannan Liu – Yale University**
Total Synthesis of Limonoid Natural Products
19. **Robert Lusi – University of California, Berkeley**
Total Synthesis of Nine Longiborneol Sesquiterpenoids
20. **Roger Machín Rivera – North Carolina State University**
General Synthesis of Cyclopropanols via Organometallic Addition to Cyclopropanone Equivalents: Application to the Formation of Enantioenriched Alkylidenecyclobutanones
21. **Allwin McDonald – University of Wisconsin-Madison**
Substrate Multiplexed Screening Enhances Engineering of a Biocatalytic Cascade
22. **Kristen Munoz – University of Illinois, Urbana-Champaign**
The Exploration of LolCDE Inhibitors as a Gram-negative Only Antibiotic
23. **Chibueze Onyeagusi – Duke University**
Palladium and Cobalt-Catalyzed Syntheses of α -Trifluoromethyl and Alkyl Amines
24. **Christopher Poff – Emory University**
Design of a Planar Chiral Group IX Piano Stool Catalyst Platform for Enantioselective C–H Functionalization
25. **Corey Richards – Saint Louis University**
Synthesis of Imidazoles and β -Alkynyl Enamines from an Isolable Iron Azametallacyclobutene Complex
26. **Mikhaila Ritz – University of Rochester**
Bisoxazoline-Pincer Ligated Cobalt-Catalyzed Hydrogenation of Alkenes
27. **Alexander Shved – University of Illinois at Urbana-Champaign**
Data Rich Experimentation for Reaction Discovery and Optimization
28. **Alexios Stamoulis – University of Wisconsin-Madison**
Development of Bifunctional Ligands to Enable High-Turnover Aerobic C-H Arylation of Free Carboxylic Acids
29. **Amir Tavakoli – West Virginia University**
Synthesis of Illudalane Sesquiterpenes by Regioselective Diyne-Alkyne Cyclotrimerization
30. **William Thomas – University of California, Irvine**
Metal Hydride Hydrogen Atom Transfer Annulations in Terpenoid Total Synthesis
31. **Mai-Jan Tom – Queen's University**
Stereospecific Rhodium-Catalyzed Allylic Cyanomethylation: Construction of Acyclic β -Quaternary Stereogenic Nitriles
32. **Oliver Williams – University of Wisconsin-Madison**
Hidden Mechanisms in Photoredox Catalysis

For interactive campus map: <https://map.unm.edu/>

Speakers

Andreea Argintaru, Axalta

Dan Bailey, Takeda

Christa Chrovian, J & J

Christina Cooley, Trinity University

Brett Fors, Cornell University

Oswaldo Gutierrez, Texas A&M

Alison Narayan, University of Michigan

Christina White, University of Illinois, Urbana-Champaign

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