THURSDAY, JULY 20
1:45 pm - 4:30 pm   Arrival and Check-in
2:30 pm - 4:30 pm   Industrial Poster Session – Ballroom A
4:30 pm - 5:45 pm   Registration and Pizza – Ballroom A Lobby and Ballroom A

THURSDAY EVENING  Presiding: Brett Fors, Cornell University
5:45 pm - 6:00 pm   Welcome – P. Andrew Evans – Ballroom A
6:00 pm - 6:50 pm   Sarah Reisman – CalTech
                     Necessity is the Mother of Invention: Natural Products and the Chemistry they Inspire
6:50 pm - 7:10 pm   Claire Page
                     Princeton University
                     Light Excitation of "Ene" Reductases Enables the (Hydro)alkylation of Alkenes and Heteroarenes
7:10 pm - 7:30 pm   Mareena Frank
                     University of Wisconsin
                     Electrochemically-Driven, Nickel-Catalyzed Cross-Electrophile Coupling of Aryl Bromides with Alkyl Bromides
7:30 pm - 7:50 pm   Patrick Kelly
                     University of Chicago
                     Strategies for Nitrogen Atom Transfer
7:50 pm - 8:10 pm   Zhi Xu
                     Yale University
                     Progress Toward the Total Synthesis of (−)-lomaiviticin A
8:10 pm - 8:30 pm   Yu Zhu via Zoom
                     Queen’s University
                     Intramolecular Rhodium-Catalyzed [(3+2+2)] Carbocyclization Reactions with Dienylidencyclopropanes: A Concise and Stereoselective Total Synthesis of the Sesquiterpene (+)-Zizaene
8:45 pm - 11:30 pm  Reception and Poster Session 1 – Ballroom A

FRIDAY, JULY 21  Presiding: P. Andrew Evans, Queen’s University
7:45 am - 9:00 am   Breakfast
9:00 am - 9:40 am   Margaret Chu Moyer – Amgen
                     Innovation in Small Molecule Drug Discovery
9:40 am - 10:00 am  Hui-Qi Ni
                     The Scripps Research Institute
Anti-Selective Cyclopropanation of Non-Conjugated Alkenes with Diverse Pronucleophiles via Directed Nucleopalladation

10:00 am - 10:20 am **Nicholas Fitzpatrick**  
Worcester Polytechnic Institute  
**Harnessing Light for Challenging Transformations: Leveraging Photoredox-Catalyzed [HAT + RPC] Formal Hydride Abstraction to Install Oxygen and Nitrogen Nucleophiles in Simple Hydrocarbons and Pharmacologically-Active Compounds**

10:20 am - 10:50 am Coffee Break – **Ballroom B/C**

10:50 am - 11:40 am **Steve Townsend** – Vanderbilt University  
**Synthesis of Mind and Body Altering Substances**

11:40 am - 12:00 am **Brittany Haas**  
University of Utah  
**Data Science for the Prediction of Amide Coupling Reaction Outcomes**

12:00 pm – 12:15 pm **Group Photograph** – Norm Asbjornsen Hall

12:15 pm - 2:30 pm Lunch and **Poster Session 1 – Ballroom B/C and Ballroom A**  
**WORKSHOPS – Brett Fors**  
**WORKSHOP 1: Academia and Entrepreneurship – Ballroom A**

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 Greco Gonzalez Miera – ACS Publications  
**The Art of Scientific Publishing**

3:30 pm – 4:00 pm **Chuck Frazier** – Apeel Sciences  
**Building from Scratch: Startups, Entrepreneurship, and Transforming Ideas into Successful Products**

4:00 pm - 4:15 pm Coffee Break – **Ballroom A**

4:15 pm - 5:15 pm **WORKSHOP 2 Academic Life – Ballroom A**  
**Andy Evans (Queen's) and Brett Fors (Cornell)**  
*Paul Blakemore (Oregon State University), Lou Charkoudian (Haverford College), Robert Gilliard (MIT), Sharon Neufeldt (Montana State University), Sarah Reisman (CalTech) and Steve Townsend (Vanderbilt).*

5:15 pm - 6:30 pm Dinner – **Inspiration Hall**

**FRIDAY EVENING Presiding: Angie Angeles, Vertex**

6:30 pm – 7:10 pm **Kyle Rugg** – Boehringer Ingelheim  
**Process Development of BI 1808128, a 4th Generation EGFR Inhibitor**

7:10 pm – 7:30 pm **Aja Nicely**  
University of Texas at Austin
Pd-Catalyzed Intramolecular Aminoboroation

7:45 – 9:15 pm  WORKSHOP 3: Industrial Life

Please see the assignments in the tables at the end of the document.

9:15 pm - 11:30 pm  Reception and Poster Session 2 – Ballroom A

SATURDAY, JULY 22  Presiding: Sharon Neufeldt, Montana State University

7:45 am – 9:00 am  Breakfast

9:00 am - 9:50 am  Robert Gilliard – MIT
Organoboron Heterocycles: From Fundamental Bonding to Functional Materials

9:50 am - 10:10 am  Alexander Oanta
Northwestern University
Understanding the Effect of Zwitterion Incorporation on 2DP Materials Quality

10:10 am - 10:30 am  David Ryffel
University of Illinois
Total Synthesis of Darobactin A

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

10:50 am - 11:30 am  Travis McMahon – FMC
Overview of Agricultural Discovery at FMC

11:30 am - 11:50 am  Jenna Humke
University of Minnesota
Access to "Inaccessible" 5-Membered Heteroarynes Using Transition Metal Complexes

11:50 am - 12:10 pm  Matthew McVeigh
University of California, Los Angeles
Pd-Catalyzed Annulations of Strained Cyclic Allenes

11:50 am - 12:10 pm  Aleksa Milosavljevic
University of Rochester
Nitrogen-Interrupted Halo-Prins/Halo-Nazarov Fragment Coupling Cascade for the Synthesis of Indolines

12:30 pm - 2:30 pm  Lunch and Poster Session 2 – Ballroom B/C and Ballroom A

SATURDAY AFTERNOON  Presiding: Steven Wisniewski, BMS

2:30 pm - 3:10 pm  Joel Barrish – Jnana Therapeutics
Drug Discovery Innovation: The Next Chapter for Medicinal Chemistry

3:10 pm - 3:30 pm  Bryan Metze
Portland State University
Formation of Arynes by C-H Deprotonation with Weak Base: Evaluating and Expanding the Functional Group Compatibility of Aryne Generation Reactions

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

4:00 pm - 4:20 pm  Patrick Gross
Enabling Asymmetric C–N Bond Formations using Planar Chiral Rh(III) Indenyl Catalysts

4:20 pm - 4:40 pm  **Hillary Nguyen**  
Colorado State University  
*Site-Selective Pyridine Functionalization via Nucleophilic Additions to Activated Pyridiniums*

4:40 pm - 5:00 pm  **Oliver Jackson**  
Montana State University  
*C2 Site-Selective Cross-Coupling of 2,4-Dihalopyrimidines*

5:00 pm - 5:20 pm  **David Cabanero**  
Columbia University  
*Deep Red (DR) to Near Infrared (NIR) Generation of Aryl(trifluoromethyl) Carbenes*

5:30 pm - 8:30 pm  Dinner  

8:30 pm  Drinks and Games:  **Recreational Center**

**SUNDAY, JULY 23  Presiding:  Aleksandra Holownia, Abbvie**

7:45 am - 9:00 am  Breakfast

9:00 am - 9:50 am  **Lou Charkoudian – Haverford College**  
*Unveiling the Biological Chemistry of Polyketide Biosynthetic Pathways by Embracing the Unexplored and Unexpected*

9:50 am - 10:10 am  **Alina Trofimova**  
University of Toronto  
*Cyclic Prenylated Oligomers – A New Platform for Interrupting and Diverting Terpene Biosynthesis Cascades*

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

10:40 am - 11:00 am  **Griffin Barnes**  
University of California, Irvine  
*A Synthesis of Alstonlarsine A via Alstolucines B and F Demonstrates the Chemical Feasibility of a Proposed Biogenesis*

11:00 am - 11:20 am  **Meredith Pomfret**  
University of Washington  
*Large Polymers That Behave Like Small Polymers*

11:20 am - 11:40 am  **Hao Tan**  
Texas A&M University  
*N-Aminopyridinium Salts as Bifunctional Intermediates for Nitrogen Group Transfer Reactions*

11:40 am – 12:00 pm  **Weiyang Guan**  
Cornell University  
*Electrochemically Driven Deoxygenative Borylation of Alcohols and Carbonyl Compounds*

12:00 pm - 1:00 pm  Lunch – **Ballroom B/C**

12:00 pm - 2:00 pm  Check out and Depart
Friday, JULY 21: POSTER SESSION 1

1. Bismarck Amaniampong – Michigan State University
   Exploiting Acetylene Dicarboxylate as a Sustainable Feedstock: Mechanistic Insights into Utilization by E. coli and Bioconversion to D-Lactate

2. Alexandra Bodnar – Yale University
   Z-Selective Cobalt-Catalyzed Propargylic Dehydrogenation

3. Tyler Azbell – Cornell University
   Cobalt (III) Halide MOFs Drive Catalytic Halogen Exchange

4. Zhenqi Zhao – California Institute of Technology
   Accessing Strained Systems via Vinyl Carbocation Intermediates

5. Adilene Bernal Sánchez – University of California, Davis
   Catalyst Design and Method Optimization for the Enantioselective Synthesis of Si-Stereogenic Centers

6. Cassandra Youshaw – Texas A&M University
   Development of (Enantioselective) Fe-Catalyzed Multicomponent Radical Cascades/Cross Couplings

7. Kendelyn Bone – Colorado State University
   Development of C–H Functionalization Reactions Enabled by Base-Catalyzed Halogen Transfer

8. Wen Xiu – Purdue University
   [4 + 1]-Cycloaddition Logic for the Total Synthesis of Terpene Alkaloid Natural Products

9. Amy Chan – Princeton University
   Marcus-Inverted Excited-State Decay Kinetics as a Photocatalyst Design Principle

10. Hunter Warren – University of California, Davis
    Synthesis and Pharmacological Evaluation of New Psychoplastogens

11. Hoang Dang – University of Iowa
    Selective Functionalization of Unactivated Diamondoid C–H Bonds via Photooxidative Proton Loss

12. Cooper Vincent – UT Southwestern Medical Center
    Photocatalytic Sulfonyl Fluorination of Alkyl Organoboron Substrates

13. Louis De Lescure – Colorado State University
    Azine Functionalization and Transformation Through Zincke Imine Intermediates: A DFT Study on Reactivity and Regioselectivity

14. Karina Targos – University of Wisconsin
    New Strategies in Oxidative Bond Formation

15. Hejun Deng – UT Southwestern Medical Center
    Total Synthesis of Nimbolide and Plumisclern A

16. Mayank Tanwar – University of Minnesota
    Mediated ElectroOrganic Transformations for Selective C-H Activation

17. Simran Dhingra – Louisiana State University
Synthesis of BODIPY-TKI Conjugates and Investigation of Their Ability for Targeting the Epidermal Growth Factor Receptor

18. Allison Stanko – California Institute of Technology  
Enantioselective Nickel-Catalyzed α-Spirocyclization of Lactones

19. Eric Dobias – Indiana University  
Enantioselective Construction of Acyclic Tertiary-Alkyl α-Fluoro Esters

20. Gavin Smith – Emory University  
Radical Chain Reduction and C(sp²/sp³) Carboxylation via Carbon Dioxide Radical Anion

Fluorinated-DDAs as Novel Anti-Cancer Agents Against EGFR+ & HER2+ Breast Cancers: Synthesis & Formulation

22. Dipshi Singh – The Ohio State University  
Cationic Cobalt(I)-Catalyzed Functionalization of Alkynes via Chemodivergent Cycloaddition Reactions and Carboboration Reaction

23. Cole Edwards – NC State University  
Efforts Toward the Total Synthesis of Echinosporin

Saturday, JULY 22: POSTER SESSION 2

24. Roberto Silva Villatoro – University of Texas at San Antonio  
General Method for Ni-Catalyzed C-N Cross-Coupling of (Hetero) Aryl Chlorides with Anilines and Aliphatic Amines using a Dual-Base Strategy

25. Nicholas Falcone – Princeton University  
Modern Tactics for Molecular Complexity: Exploring the Construction of Elaborate Heterocyclic Frameworks Through the Synthesis of Maeocrystal V

26. Jagrut Shah – Stony Brook University  
Direct Synthesis of 2-Aminophenols from Triplet-State Nitro(hetero)arenes and Excited-State Cu-Catalysis

27. Karan Goyal – University of California, Berkeley  
Exploration of Spirocyclic Topology: Reaction Discovery en route to the Total Synthesis of Urceoloids A & B

28. Jose Ruiz – University of California, Davis  
Enantioselective Synthesis of Carbacycles by Donor/Donor Carbenes C-H Insertion

29. Nathaniel Greenwood – Yale University  
Sulfur-Functionalization of Sulfenamides: New Approaches to High Oxidation State Sulfur Pharmacophores

30. Jessica Pazienza – University of California, Irvine  
Efforts Towards the Synthesis of the Euphopia A Scaffold

31. Thiago Grigolo – Florida State University  
Total Synthesis Enabled by Regioselective Asymmetric Pyridinium Dearomatization
32. **Shashwati Paul** – Indiana University  
   *Synthesis of Bicyclic Building Blocks to Enable Medicinal Chemistry*

33. **Jiachen He** – Indiana University  
   *Metal-free, Photoinduced C(sp3)-H Borylation*

34. **Anthony Palermo** – University of Toronto  
   *Stereospecific Synthesis of Strained Rings from Photochemically Generated α-Siloxycarbenes*

35. **Benjamin Hejna** – Princeton University  
   *Catalytic Asymmetric Hydrogen Atom Transfer Enables the Hydroamination of Alkenes*

36. **Claire Herbert** – University of California, Irvine  
   *Synthesis of Vicinal Carbocycles by Intramolecular Nickel-Catalyzed Conjunctive Cross-Electrophile Coupling Reaction*

37. **Casey Olen** – University of Illinois  
   *Chemoinformatic Catalyst Selection Methods for the Optimization of Copper-Bis(oxazoline) Mediated Asymmetric Mukaiyama Aldol Reactions*

38. **Fernanda Hernandez Sanchez** – University of Arkansas  
   *Alkynylation of dihydroquinazolinones as Radical Precursors via Hypervalent Iodine compounds under Photoredox Catalysis*

39. **Skylar Norman** – Wake Forest University  
   *Solvent Dependency on the Rate-Determining Step of Gold-Catalyzed N-Propargyl Benzamide*

40. **Jose Intano** – University of Connecticut  
   *[3+2] Nitrile Oxide Cycloadditions of Strained Dipolarophiles*

41. **Giulia Murbach-Oliveira** – Purdue University  
   *Design and Synthesis of IRE1α Inhibitors for Suppression of Necroptosis*

42. **Russell Kielawa** – University of Chicago  
   *Development of a General Synthetic Strategy Toward Akuammiline Alkaloids*

43. **Bill Motsch** – Temple University  
   *Synthesis of Pyridinium Salts via C–H Functionalization Enabled by Arene Radical Cations*

44. **Matthew Lasky** – University of Michigan  
   *Photocatalytic C-H Amination of Arenes Utilizing a Versatile Acridine-Lewis Acid Complex*

45. **Adam Mitrevski** – Purdue University  
   *Design and Synthesis of a Dual-Action Agent Capable of Simultaneously Activating HIV-1 Latency and Preventing New Infection*

46. **Jonnathan Marin** – University of Illinois  
   *Optimizing Protein Likeness Enhances Recovery of Physiology for a Molecular Prosthetic*

*For interactive campus map:* https://www.montana.edu/campusmap/#!/
## DOC Graduate Research Symposium

*Montana State University, Bozeman, Montana, July 20-23, 2023*

<table>
<thead>
<tr>
<th>Group A (Angeles)</th>
<th>Group B (Evans)</th>
<th>Group C (Fors)</th>
<th>Group D (Neufeldt)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Last Name:</strong> Amaniampong to Franke</td>
<td><strong>Last Name:</strong> Goyal to McVeigh</td>
<td><strong>Last Name:</strong> Metze to Ruiz</td>
<td><strong>Last Name:</strong> Ryffel to Zhu</td>
</tr>
<tr>
<td><strong>Ballroom A</strong></td>
<td><strong>Ballroom B</strong></td>
<td><strong>Ballroom C</strong></td>
<td><strong>Ballroom D</strong></td>
</tr>
<tr>
<td>Anthony Mastracchio - Abbvie</td>
<td>Aleksandra Holownia - Abbvie</td>
<td>Guanlin Bao - Adesis</td>
<td>Yagya Subedi - Adesis</td>
</tr>
<tr>
<td>Margaret Chu-Moyer - Amgen</td>
<td>Carolyn Wei - Amgen</td>
<td>Wenhan Zhang - Amgen</td>
<td>Chuck Frazier - Apeel Sciences</td>
</tr>
<tr>
<td>Jake Song - Arcus</td>
<td>Kyle Rugg - Boehringer Ingelheim</td>
<td>Nicola Webb - BMS</td>
<td>Steve Wisnewski - BMS</td>
</tr>
<tr>
<td>Zachary Buchan - Corteva</td>
<td>Erin Hancock - Corteva</td>
<td>Travis McMahon - FMC</td>
<td>Richard Thornbury - Gilead</td>
</tr>
<tr>
<td>Adam Schrier - Gilead</td>
<td>Gregg Barcan - GSK</td>
<td>Tyler Higgins - GSK</td>
<td>Marshall Law - Incyte</td>
</tr>
<tr>
<td>Cooper Taylor - Incyte</td>
<td>Nicole Behnke - Janssen</td>
<td>Christopher McAtee - Janssen</td>
<td>Joel Barrish - Jnana</td>
</tr>
<tr>
<td>Thorsten Rosner - J-Star</td>
<td>Adriana Jamison - Lilly</td>
<td>Tamas Benkovics - Loxo Oncology</td>
<td>Jamie McCabeDunn - Merck</td>
</tr>
<tr>
<td>Katie Logan - Merck</td>
<td>Cheng Chen - Mirati s</td>
<td>Casey Mathison - Novart</td>
<td>Emma McInturff - Pfizer</td>
</tr>
<tr>
<td>Ryan Patman - Pfizer</td>
<td>ZhenZhen Dong - PharmaBlock</td>
<td>Tatsuaki Matsubara - Takeda</td>
<td>Ving Lee - UDC</td>
</tr>
</tbody>
</table>
Speakers
Joel Barrish, Jnana Therapeutics
Lou Charkoudian, Haverford College
Margaret Chu Moyer, Amgen
Robert Gilliard, MIT
Travis McMahon, FMC
Sarah Reisman, CalTech
Kyle Rugg, Boehringer Ingelheim
Steve Townsend, Vanderbilt University

Sponsors
Abbvie
ACS Publications
Amgen
Adesis
Apeel Sciences
Arcus
Boehringer Ingleheim
Biogen
BMS
Corteva
FMC
Genentech
Gilead
GSK
Incyte
Janssen
Jnana
JSTAR
Lilly
Loxo Oncology
Merck
Mirati
Novartis
Organic Syntheses
Pfizer
PharmaBlock
Sanofi
Snapdragon
Takeda
Universal Display Corporation

Organizers
Angie Angeles, Vertex Pharmaceuticals
P. Andrew Evans, Queen’s University
Brett P. Fors, Cornell University
Sharon R. Neufeldt, Montana State University