

7th Graduate Research Symposium

July 28 – 31, 2016

Bryn Mawr College

Bryn Mawr, PA



DOC Graduate Research Symposium

Bryn Mawr College, Bryn Mawr, PA July 28-31, 2016

THURSDAY, JULY 28

3:00 pm - 4:30 pm Arrival and Dormitory Check-in at New Dorm Hall – 815 Yaros and Merion

4:30 pm - 5:45 pm Registration and Pizza – Thomas Great Hall

THURSDAY EVENING *Presiding: G. Molander, University of Pennsylvania*

5:45 pm - 6:00 pm **Welcome – Thomas 110**

6:00 pm - 6:50 pm **Stephen Buchwald, MIT**

Cu-Catalyzed Asymmetric Hydroamination Processes in Organic Synthesis

6:50 pm - 7:10 pm **Jacqueline Gamboa Varela**

University of Missouri

Formation and Properties of High-yield, Thermally-reversible, Hydrazone-derived Interstrand DNA

Cross-Links Generated by the Reaction of N4-Aminocytidine residues with Abasic Sites.

7:10 pm - 7:30 pm **Ben Turnbull**

Queen's University

Rhodium-Catalyzed Allylic Substitution Reactions with Nitrile-Stabilized Carbanions: Construction of

Acyclic Quaternary Stereocenters

7:30 pm - 7:50 pm **Patrick Lutz**

Princeton University

Ni-Catalyzed, Enantioselective Arylation of Pyridinium Ions

7:50 pm - 8:10 pm **Robynne Neff**

University of Texas at San Antonio

Exploiting β -Hydride Eliminations en Route to Chiral Allenes

8:10 pm - 8:30 pm **Kevin Smith**

Indiana University

Stereospecific Cross-Coupling via Copper/Palladium Synergistic Catalysis

9:00 pm - 11:30 pm Reception – Thomas Great Hall

FRIDAY, JULY 29 *Presiding: P. Andrew Evans, Queen's University*

8:15 am - 9:00 am Continental Breakfast – Thomas Great Hall

9:00 am - 9:40 am **Jade Nelson, Pfizer**

Chemical process development of SGLT2 inhibitor ertugliflozin L-PGA

9:40 am - 10:00 am **Andy Thomas**

University of Illinois at Urbana- Champaign

Pre-Transmetalation Intermediates in the Suzuki-Miyaura Reaction Revealed

10:00 am - 10:20 am **Yuping Wang**

Northwestern University

Radical Interactions in Molecular Recognition

10:20 am - 10:40 am Coffee Break - Cloisters

10:40 am - 11:20 am **Kate Ashton, Amgen**
GKRP: A Case Study

11:20 am - 11:40 am **Trandon Bender**
 University of North Carolina, Chapel Hill
Selective Defunctionalization of Bio-Derived Molecules

11:40 am - 12:00 am **Michael Gilbert**
 University of Michigan
Site-Selective C-H Oxidation of Macrocyclic Substrates using the Cytochrome P450 PikC

12:00 - 12:15 pm **Group Photograph – Front Steps of Thomas Hall**

12:15 pm - 2:30 pm Lunch and **Poster Session 1 – Thomas Great Hall**

2:30 pm - 5:00 pm **WORKSHOP 1: Academic Life – Thomas 110**
 Robert G. Lees, NIGMS
 Johanna P. Schwartz, Klarquist
 Sonja Krane, ACS Publications
Stephen Buchwald (MIT), Nikki Pohl (Indiana), Anne McNeil (Michigan), Phyllis Leber (Franklin & Marshall), Jason Schmink (Bryn Mawr), Andrew Evans (Queen's University), Gary Molander (UPenn).

FRIDAY EVENING *Presiding: Professor Jason Schmink, Bryn Mawr*

5:00 pm - 6:30 pm Dinner - Cloisters

6:30 pm - 7:20 pm **Nikki Pohl, Indiana University**
The Interwoven Challenges of Carbohydrate Synthesis and Analysis

7:20 pm - 7:40 pm **Inanllely Gonzalez**
 Pennsylvania State University
Intramolecular [3 + 2] Cyclocondensations of Alkenes with Indolidenes and Indolidenium Cations: Application Towards the Total Synthesis of Lecanindole D

8:00 - 9:30 pm **WORKSHOP 2: Industrial Life**

Group A (P. A. Evans)
Thomas 110

Ian Davies, Merck
 Kate Ashton, Amgen
 Ke Chen, BMS
 Jade Nelson, Pfizer
 Joshua Dunetz, Gilead
 Chuck Frasier, Apeel Sci.
 Neil Johnson, GSK
 Kim Steward, Dow Ag

Group B (D. M. Huryn)
224 Thomas, Gordon
Lecture Room

Tony Trullinger, Dow Ag
 Jim Lanter, JNJ
 Justin Malinowski, Amgen
 Ben Sherry, Merck
 Liz Swift, Abbvie
 Sean Xia, Universal Display
 Sarah Trice, Sigma-Aldrich
 Folkert Reck, Novartis

Group C (G. A. Molander)
Thomas Quita-Woodward
Library

Lamont Terrell, GSK
 David St. Jean, Amgen
 Phieng Siliphaivanh, Merck
 Cameron Lee, Novartis
 Derck Cogan, Boehringer Ing.
 Larry Hamann, Celgene
 Stephen Lau, Gilead
 Lisa Marcaurelle, Warp Drive Bio

9:30 pm - 11:45 pm Reception - Thomas Great Hall

SATURDAY, JULY 30 *Presiding: Dr. Donna Huryn, UPenn*

8:15 am - 9:00 am Continental Breakfast - Thomas Great Hall

9:00 am - 9:50 am **Anne McNeil, University of Michigan**

Catalyst Transfer Polycondensation: Challenges and Opportunities

9:50 am - 10:10 am **Margaret Hilton**
University of Utah

Examining Noncovalent Interactions in the Enantioselective Pd-catalyzed 1,1-Diarylation of Alkenes

10:10 am - 10:30 am **Kierra Huihui**
University of Rochester

Nickel-Catalyzed Reductive Conjugate Addition: New Electrophiles & Potential Stereoselectivity

10:30 am - 10:55 am Coffee Break – Cloisters

10:55 am - 11:35 am **Tony Trullinger, Dow AgroSciences**

Discovery and Synthesis of New Crop Protection Solutions

11:35 am - 11:55 am **Zef Konst**
University of California, Irvine

Synthesis and Translation Inhibition of the Lissoclimides

11:55 am - 12:15 am **Christina Teijaro**
Temple University

Total Synthesis of Alstolucine Natural Products and their Modulation of ABCC10

12:15 pm - 2:30 pm Lunch and **Poster Session 2 – Thomas Great Hall**

SATURDAY, AFTERNOON *Presiding: Dr. David St. Jean, Amgen*

2:30 pm - 3:10 pm **Lamont Terrell, Glaxo SmithKline**

The Life of a Medicinal Chemist - A TRP Down Memory Lane

3:10 pm - 3:30 pm **Zhitong Zheng**
University of California, Santa Barbara

C-H insertions in oxidative gold catalysis: Synthesis of polycyclic compounds via a relay strategy

3:30 pm - 3:55 pm Coffee Break - Cloisters

3:55 pm - 4:15 pm **Yike Zou**
University of Pennsylvania

Total Synthesis of Nodulisporic Acids

4:15 pm - 4:35 pm **David Fisher**
University of California, Santa Barbara

Synthesis of Hindered alpha-Amino Carbonyls: Copper-Catalyzed Radical Addition with Nitroso Compounds

4:35 pm - 4:55 pm **Jessica Grandner**
University of California, Los Angeles

Computational explorations of new reactions and useful selectivities catalyzed by P450 enzymes

4:55 pm - 5:15 pm **Daniel Kim**
University of California, Irvine

Cobalt-Catalyzed Hydroacylation: Synthesis of Cyclobutanones

5:30 pm - 8:30 pm Dinner – Bryn Mawr
8:30 pm Drinks: Kelly's Taproom, 1107 Lancaster Ave, Bryn Mawr, PA 19010

SUNDAY, JULY 31 *Presiding: Gary Molander, University of Pennsylvania*

8:15 am - 9:00 am Continental Breakfast – Thomas Great Hall

9:00 am - 9:50 am **Phyllis Leber, Franklin & Marshall College**

Thermal Reactions of Bicyclic and Tricyclic Vinylcyclobutanes

9:50 am - 10:10 am **Ryan Landis**
University of Massachusetts

Crosslinked Polymeric-Stabilized Nanocomposites for the Treatment of Multidrug-Resistant Biofilms

10:10 am - 10:30 am **William Mackay**
University of North Carolina, Chapel Hill

Development of a Dearomatization/Diels-Alder Sequence to Highly Substituted Cyclohexanes

10:30 am - 11:00 am Coffee Break - Cloisters

11:00 am - 11:20 am **Ryan Quiroz**
Stanford University

The Step-Economical and Practical Synthesis of Bryostatin 1 and Analogs

11:20 am - 11:40 am **Corey Basch**
University of Delaware

Nickel-Catalyzed Cross-Couplings via Activation of Alkyl Carbon-Nitrogen Bonds

11:40 am - 12:00 pm **Crystal Chu**
CalTech

Controlling Selectivity of Palladium-Catalyzed Oxidations of Functionalized Olefins

12:00 pm - 1:00 pm Lunch – Thomas Great Hall

12:00 pm - 2:00 pm Check out, New Dorm Hall

2:00 pm Depart

FRIDAY, JULY 29: POSTER SESSION 1

1. **Sambasiva Bheemireddy, Southern Illinois University**
Functional Organic Electronic Materials by Palladium-Catalyzed Cyclopentannulation
2. **Phil Calabretta, University of Wisconsin-Madison**
Chemical Complementation to Probe Bacterial Cell Envelope Biosynthesis
3. **Scott Caplan, University of Pittsburgh**
DDQ-Mediated Carbon-Hydrogen Bond Functionalization and Progress Towards the First Total Synthesis of Divergolide A
4. **ChiaFu Chang, University of Notre Dame**
The Applications of Ether Transfer and Cyclopropanation Methodologies Toward the Synthesis of Polyketides Natural Products: Lyngbyaloside C and Ambruticins
5. **Sauradip Chaudhuri, University of Rhode Island**
Synthetically Modified Cyclodextrin for Sensing and Catalysis
6. **Tesia Chciuk, Lehigh University**
Proton-Coupled Electron Transfer in the Reduction of Carbonyls by Samarium Diiodide-Water Complexes
7. **Michael Corsello, UCLA**
Unified Synthetic Strategy Toward the Tubingensin Alkaloids
8. **Lindsey DeRatt, University of Florida**
Tandem Gold-Catalyzed Dehydrative Cyclization/Diels-Alder Reactions: Facile Access to Indolocarbazole Alkaloids
9. **Brenden Derstine, Temple University**
Electronic Control of a Titanium(II) Mediated Reductive Cyclization: Formation of a New C – C Bond to Access Amino Ketone Scaffolds
10. **Heemal Dhanjee, Baylor University**
Progress Toward the Total Synthesis of Tetrapetalone A
11. **Seth Ensign, University of Illinois, Urbana-Champaign**
Rhodium-Mediated Regio- and Chemoselective Hydroamination
12. **Renan Ferreira, University of Florida**
Disulfide-Bond Disrupting Agents (DDAs): Novel Anticancer Agents that Downregulate EGFR, HER2, and HER3 in Parallel

13. Chris Gabriel, University of California, Santa Barbara

Sustainable and Scalable: Fe-ppm Pd nanoparticle Nitro Group Reductions in Water at Room Temperature

14. Satish Gadhiya, Hunter College

Racemic and Enantioselective Synthesis of Stepholidine via a Common Intermediate

15. Danielle Hirsch, City College of New York, Graduate Center

Utility of Halogenated Intermediates for the Synthesis of Bioactive Troponoids

16. Akila Iyer, North Dakota State University

Visible Light Mediated Photocatalysis for Classical Photoreactions

17. Kendrick Lao, University of Connecticut

Preparation of Strained Heterocycles Towards the Synthesis of Laureoxolane

SATURDAY, JULY 30: POSTER SESSION 2

18. Edith Nagy, Florida Atlantic University

Studies on Ammonium-Catalyzed Cyclitive Additions to Alkynes: A General Approach to Diheteroatom Heterocycles

19. Long Nguyen, Boston University

Progress Towards a Practical Synthesis of Neurotrophic Daphnane Diterpenes

20. Michael Reardon, Clark University

Towards an Anti-MRSA Dolabellane and Related Bicycle

21. Mayra Rostagno, University of Florida

Biorenewable Aromatic Polyacetals for Commodity Plastic Mimics

22. Mirza Saputra, Louisiana State University

Exploiting Atropisomerism in Unsymmetrical 2-Azaallyl Cations towards Regioselective and Diastereoselective SN-1 Type Reactions

23. Tessy Thomas, University of Maryland, College Park

The Development of End-group Functionalized Polyolefin Building Blocks Through Living Coordination Chain Transfer Polymerizations

24. Jacob Timmerman, Duke University

Gold(I)-Catalyzed anti-Markovnikov Hydrofunctionalization Reactions of Alkylidenecyclopropanes

- 25. Mary Alice Upshur, Northwestern University**
Synthesis and Surface-Specific Analyses of Organic Constituents Relevant for Atmospheric Aerosols
- 26. Whitney Walker, Brigham Young University**
Enantioselective Allylic Aminations with Hindered Amine Nucleophiles Enabled by Heterobimetallic Pd–Ti Catalysts
- 27. Wenyu Wang, Boston University**
Synthesis of Aza-Rocaglates via (3+2) Photocycloaddition in a Continuous Photoflow Reactor
- 28. Corey Williams, Georgia Institute of Technology**
(Homo-)Nazarov Cyclizations as Vehicles for Chemical Diversity and Total Synthesis
- 29. Diana Yu, University of British Columbia**
Lewis Acid vs Bronsted Acid Catalysis in the Aza-Piancatelli Rearrangement
- 30. Manwika Charashanya, University of Kansas**
Construction of an Azasteroid Library
- 31. Hai Qian, Dartmouth College**
Light-activated Hydrazone Based BF_2 -Azo Switch
- 32. Chathurika Jayasundara, Michigan State University**
Methods to & Uses of Selective C-H Borylation
- 33. Nicholas Truex, University of California, Irvine**
Assembly and Coassembly of Peptides Derived from β -Sheet Regions of β -Amyloid
- 34. Eileen Burke, University of Wisconsin, Madison**
Oxidative Allene Amination for the Synthesis of New Heterocycles

WHERE DO I FIND?

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 Bookshop, Campus Center, 15
 Café (Uncommon Grounds), Campus Center, 15
 Café (Lusty Cup), Canaday Library, 34
 Campus Safety, Maloney Building, 12
 The Cloisters (Thomas Great Hall), 41
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 Gym (Schwartz Fitness and Athletics Center), 10
 Human Resources, 29
 Library, Canaday, 34
 Library, Carpenter, 39
 Library, Collier, 13
 OneCard, Cartref, 24
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 Taft Garden, 40
 Thomas Great Hall, 41
 Wyndham Guest House, 30

P VISITOR PARKING

ACCESSIBLE PARKING

Maria Rabinsky



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AIRDALE ROAD

ASHBRIDGE ROAD

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Plenary Speakers

Kate Ashton, Amgen

Stephen Buchwald, MIT

Phyllis Leber, Franklin & Marshall College

Tony Trullinger, Dow AgroScience

Anne McNeil, University of Michigan

Jade Nelson, Pfizer

Nikki Pohl, Indiana University

Lamont Terrell, GlaxoSmithKline

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