

Graduate Research Symposium

July 20 – 23, 2017

Portland, OR



DOC Graduate Research Symposium

Portland State University, Portland, OR July 20-23, 201

Broadway Building: 1977 SW 6th Avenue, Portland, OR 97201

Native American Center: 710 SW Jackson St, Portland, OR 97201

Science Research and Teaching Center (SRTC): 1719 SW 10th, Portland, Oregon 97201

Science Building 1 (SB1): 1719 SW 10th, Portland, Oregon 97201

THURSDAY, JULY 20

- 2:00 pm – 3:00 pm Intel Informational Session **SRTC Rm 247** (Optional Opportunity)
- 3:00 pm - 4:30 pm Arrival and Dormitory **Check-in at Broadway Building**
- 3:30 pm – 4:30 pm Power Hour – “Just ask for it”- The Art of Negotiation **SRTC Rm 108** (Optional Opportunity)
Dr. Marilyn Mackiewicz, Dr. Karen Marrongelle - Portland State University
- 4:30 pm - 5:30 pm Registration and Pizza – **SRTC Lobby 1st Floor**

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

- 5:30 pm - 5:45 pm **Welcome – SB1 107**
- 5:45 pm - 6:00 pm **Organic Reactions Presentation – SB1 107**
- 6:00 pm - 6:50 pm **Timo Ovaska, Connecticut College – SB1 107**

*Oxyanionic 5- and 6-exo dig Cyclization/Claisen Rearrangement Reactions:
Applications to the Synthesis of Natural Products*

- 6:50 pm - 7:10 pm **Zhuoran Zhang**
University of Minnesota
Studies into the Synthesis of [12]Cyclacene
- 7:10 pm - 7:30 pm **Jeffrey Lipshultz**
Princeton University

Catalyst-Controlled Oligomerization for the Total Synthesis of Polypyrroloindoline Natural Products

- 7:30 pm - 7:50 pm **Faben Cruz**
University of California, Irvine
Metal-Hydride Catalysis: Alkyne Hydrofunctionalization
- 7:50 pm - 8:10 pm **Cynthia Hong**
University of California, Berkeley

Conformational Selection as the Mechanism of Guest Binding in a Flexible Self-Assembled Host

- 8:10 pm - 8:30 pm **Samuel Gockel**
University of Illinois
Copper-Catalyzed Three-Component Carboamination of Alkenes
- 8:45 pm - 11:30 pm Reception and **Poster Session 1 – SRTC Lobby 2nd floor**

FRIDAY, JULY 21 *Presiding: P. Andrew Evans, Queen's University*

8:15 am - 9:00 am Continental Breakfast – **SRTC Lobby 2nd floor**

9:00 am - 9:40 am **Wendy Young, Genentech – SB1 107**

From Bench to Clinic: Potent and Selective BTK Inhibitors for the Treatment of RA & Lupus

9:40 am - 10:00 am **Christos Economou**

Yale University

Synthetic Studies toward the Antitumor Antibiotic (-)-Myrocin B

10:00 am - 10:20 am **Jillian Sanzone**

New York University

Uncatalyzed 1,2-Carboboration of trans-Alkenes

10:20 am - 10:40 am Coffee Break – **SB1 Terrace**

10:40 am - 11:20 am **Chris Davie, GSK**

DNA-Encoded Library Technology at GSK - Platform Chemistry Advances

11:20 am - 11:40 am **David George**

University of California, Irvine

A New Strategy for the Synthesis of Paxilline Indole Diterpenes

11:40 am - 12:00 am **Nathaniel Kenton**

Ohio State University

Total Synthesis and Structural Definition of Azaspiracid-3

12:00 - 12:15 pm **Group Photograph – Hoffman Hall**

12:15 pm - 2:30 pm Lunch and **Poster Session 1 – SRTC Lobby 2nd floor**

ACADEMIC WORKSHOPS – P. Andrew Evans

2:30 pm - 3:15 pm **WORKSHOP 1: Academic Support – SB1 107**

Robert G. Lees, NIGMS

Lingling Chen, ACS Publications

3:15 pm - 4:00 pm **WORKSHOP 2: Entrepreneurship – SB1 107**

Johanna P. Schwartz, Klarquist

Jennifer E. Fox, OTRADI and OTRADI Bioscience Incubator

Angela Jackson, PSU Business Accelerator

4:00 pm – 5:00 pm **WORKSHOP 3: Academic Life – SB1-107**

Helen Blackwell (Wisconsin), Andrew Evans (Queen's), Marilyn Mackiewicz (PSU), Gary Molander (UPenn), Timo Ovaska (Connecticut College), David Stuart (PSU) and Dean Toste (Berkeley)

FRIDAY EVENING *Presiding: Marilyn Mackiewicz*

5:00 pm - 6:30 pm Dinner – **Native American Center**

6:30 pm - 7:20 pm **Helen Blackwell, University of Wisconsin, Madison – SB1 107**

Synthetic Ligands for the Interception of Bacterial Communication: New Languages, New Outcomes

7:20 pm - 7:40 pm **Kuangbiao Liao**

Emory University

Development of a Rhodium Carbene Toolbox for Site-selective and Stereoselective C–H

Functionalization of Non-Activated C–H Bond

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

Group A (Evans) SRTC 108	Group B (Mackiewicz) SRTC 104	Group C (Molander) SRTC 101	Group D (Stuart) SRTC 155
Justin Malinowski, Amgen Mike Luzung, BMS Kimberly Steward, Dow Ag Mike Siu, Genentech Chris Davie, GSK Nick Curruthers, Janssen Ben Sherry, Merck Aimee Usera, Novartis Rob Todd, Trans World Chem	Kate Ashcroft, Amgen Chuck Frazier, Apeel Matt Alexander, Celgene Belgin Canturk, Dow Ag Silas Wang, Gilead Lamont Terrell, GSK Chris Darby, Intel Wenqing Yao, Incyte John Flygare, Merck	Dave St. Jean, Amgen David Sandoval, Apeel Mike Hay, BMS Bob Kyne, Celgene Wendy Young, Genentech Stephen Lanthrop, Gilead Michael Ameriks, Janssen Siliphaivanh, Phieng, Merck Ben Glasspoole, Sigma-Aldrich Kyle R. Gee, Thermofisher	Danny Lee, Abbvie Mark Nilson, GSK Eddie Yue, Incyte Jack Hwang, Intel Savithri Ramurthy, Novartis Chris McWilliams, Pfizer Tony Chaser, PPG Aida Melendez, TCI Chris Vonnegut, Thermofisher

9:30 pm - 11:45 pm Reception and **Poster Session 2 – SRTC Lobby 2nd floor**

SATURDAY, JULY 22 *Presiding: David Stuart, Portland State University*

8:15 am - 9:00 am Continental Breakfast – **SRTC Lobby 2nd floor**

9:00 am - 9:50 am **Dean Toste, University of California, Berkeley – SB1 107**

Organic Reactions Inspired by the Organometallics of Gold

9:50 am - 10:10 am **Brittany White**

University of Oregon

[n]Cycloparaphenylenes as a New Class of Cellular Imaging Agent

10:10 am - 10:30 am **Melissa Lee**

University of Michigan

Remote C(sp³)-H Functionalization of Aliphatic Amines

10:30 am - 10:55 am Coffee Break – **SB1 terrace**

10:55 am - 11:35 am **Tony Chasser - PPG – SB1 107**

Innovation at PPG Industries – Past and Present

DOC Graduate Research Symposium

Portland State University, Portland, OR July 20-23, 201

11:35 am - 11:55 am **Xiaofan Liu**

Northeastern University

De novo Asymmetric Syntheses and SAR-Studies of Macrolactone Natural Products

11:55 am - 12:15 am **Frank Lee**

University of Toronto

Mechanistic Insights into Borotropic Reactions that Enable Heterocycle Synthesis

12:15 pm - 2:30 pm Lunch and **Poster Session 2 – SRTC Lobby 2nd floor**

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

2:30 pm - 3:10 pm **Silas Wang, Gilead – SB1 107**

Process Chemistry Development of Velpatasvir: Pan-genotypic NS5A Inhibitor in Epclusa® for Hepatitis C Treatment

3:10 pm - 3:30 pm **Kristen DeMeester**

University of Delaware

Synthesis of Bioorthogonal Muramyl Glycans to Illuminate and Track Bacterial Peptidoglycan

3:30 pm - 3:55 pm Coffee Break - **SB1 Terrace**

3:55 pm - 4:15 pm **Kaitlyn Logan**

Indiana University

New Methods for Stereospecific Cross-Coupling via Alkene Difunctionalization

4:15 pm - 4:35 pm **Dmitry Kuznetsov**

University of Denver

Synthesis of Complex Polyheterocycles via Photoassisted Intramolecular Dearomatization Cascade

4:35 pm - 4:55 pm **Danielle Fagnani**

University of Florida

Hydrogen Bond-Directed Chiral Self-recognition and One-dimensional Self-assembly of [2.2]Paracyclophane

4:55 pm - 5:15 pm **Khoa Nguyen**

The University of Texas at Austin

Development of Carbon-Carbon Bond Formations via Metal Catalyzed Transfer Hydrogenation - Applied Toward Total Synthesis of Natural Product

5:30 pm - 8:30 pm Dinner – Downtown Portland – see Dining PDF

8:30 pm Drinks: Punch Bowl Social

SUNDAY, JULY 23 *Presiding: Gary Molander, University of Pennsylvania*

8:15 am - 9:00 am Continental Breakfast – **SRTC Lobby 2nd floor**

9:00 am - 9:50 am **Sir Fraser Stoddart, Northwestern University**

The Rise and Promise of the Mechanical Bond in Chemistry

9:50 am - 10:10 am **Scott Thullen**

Columbia University

Hydroaminoalkylation of Conjugated Dienes Using a Unified Cobalt and Photoredox System

10:10 am - 10:30 am **Yuxuan Ye**

Massachusetts Institute of Technology

Palladium-Catalyzed Fluorination of Vinyl Triflates and Copper-Catalyzed Indolization of Olefins

10:30 am - 11:00 am Coffee Break – **SB1 Terrace**

11:00 am - 11:20 am **Tao Liu**

The Scripps Research Institute

Remote C(sp³)-H Functionalization through A Directed Radical H-Abstraction

11:20 am - 11:40 am **Andrew Steele**

Temple University

Synthetic Studies of the Species-Selective Antibacterial Natural Product (–)-Promysalin: From Structural Assignment to Target Identification

11:40 am - 12:00 pm **Alice Chang**

California Institute of Technology

Architectural Control via Ring-Opening Metathesis Polymerization: Design, Synthesis, and Self-Assembly of Graft Polymers

12:00 pm - 1:00 pm Lunch – **SRTC Lobby 2nd floor**

12:00 pm - 2:00 pm Check out at **Broadway Building**

2:00 pm Depart

FRIDAY, JULY 21: POSTER SESSION 1

1. Austin Shigemoto – Portland State University

Water-Soluble Thiophene-Based Fluorescent Mercury-Sensors

2. Matthew Sandridge – Georgia Institute of Technology

Dehydrative, Acid-catalyzed Cyclizations of Carbinols

3. Jianming Kang – Washington State University

Novel pH-Controlled Hydrogen Sulfide (H₂S) Donors and Their Applications

4. Alexander Karns – University of California, Irvine

Progress Toward the Total Synthesis of Kalihinol A

5. Xiao Jin – Temple University

*Click Chemistry in cellulo: Bacterial Cell as Reaction Vessel Selectively Synthesize
Macrolide Antibiotics*

6. Carolyn Virca – Portland State University

*Computational and Experimental Investigation into the Effects of Ligand Modification on
Derivatives of the Ni(pyridinethiolate)₃-proton Reduction Catalyst*

7. Anthony Clay – North Dakota State University

Atropselective Acyl-Migration Utilizing Visible light

8. Timothy Monos – University of Michigan

Interrogating Radical and Redox Reactions for the Smiles Rearrangement

9. Victoria Rose Kohout – Indiana University

Progress towards Solution-Phase Automated Oligosaccharide Synthesis

10. Michael Wisthoff – University of Delaware

Efforts Toward a Total Synthesis of Psiguadial A

11. Kim Ngan Thi Tu – University of California, Irvine

Oxyboration With and Without a Catalyst: Borylated Isoxazoles via B–O σ -Bond Addition

12. Jeremy Griffin – University of North Carolina at Chapel Hill

Modifying Classic Organic Reactivity Through Photoredox Catalysis

13. Matthew Horowitz – University of North Carolina at Chapel Hill

Advances in Stereoselective Umpolung and Aldol Reactions and Progress Towards the Total Synthesis of Three Veratrum Alkaloids

14. Christopher Evoniuk – Florida State University

Taming Radicals for the Preparation of N-Heterocycles: from Small Molecules to Extended Aromatics

15. Sourabh Mishra – University of Florida

Facile Tuning of Atropisomeric P,N-Ligands Towards Enantioselective Conjugate Alkynylation

16. Austin Jones – University of Florida

Electron Transfer in Conjugated Oligomers

17. Lucas Moore – University of California, Davis

Formal [4 +2] Cycloadditions of N-Sulfonyl Imines and Cyclic Anhydrides

18. Veronika Shoba – University of Nebraska, Lincoln

Borane-promoted Catalytic Asymmetric Hydrogenation of Tri- and Tetrasubstituted Alkenes

19. Anushka Naiknaware – Westview High School, Beaverton, OR

Fractal Inspired Carbon Nanoparticles-based Biocompatible Sensor for Wound Management

20. Julia Dayton – Southridge High School, Beaverton, OR

Evaluation of Thiophene-substitution on the Sensitivity and Selectivity for Mercury(II) ions

SATURDAY, JULY 22: POSTER SESSION 2

21. Emily Allen – Boston University

Metal-Mediated Reactions of ortho-Quinone Methides

22. Eric Wiensch – University of Michigan

Silyloxyarenes as Versatile Coupling Substrates Enabled by Nickel-Catalysis

23. Kamaljeet Singh – Oklahoma State University

Light Harvesting for Rapid and Selective Reactions

24. Sandeep Dhanju – Wayne State University

Hydroxylamines and Hydrazines as Surrogates of Stereogenic Centers in Carbon Frameworks

25. He Huang – University of New Mexico

Development of New Technologies for Sustainable Synthesis of Organic Aldehydes

26. Zhichao Lu – University of Louisville

Green Cellulose Bonded Palladium Catalyst Development for Cross-Coupling Reactions

27. Christopher Sleet – UT Southwestern Medical Center

Copper-Catalyzed Aminothiolation of 1,3-Dienes via a Dihydrothiazine Intermediate

28. Andrew Krasley – Bryn Mawr College

Enantioselective Construction of Tricyclic Ring Systems with Quaternary Carbon Stereocenters

29. Willam Shuler – University of Virginia

Overcoming Challenges in Aliphatic C-H Bond Hydroxylations using Iminium Salt and Ketone Organocatalysts

30. Munia Sowaileh – University of Mississippi

Synthesis of Fluoromethylketones and Fluoromethylsulfones using Stabilized Difluorocarbanions

31. Parham Asgari – The University of Texas at Arlington

Selective Catalytic Silylation, Mechanism and Synthetic Applications

32. Julia Jennings – University of California, Davis

Development of a $\text{La}(\text{OTf})_3$ -Catalyzed Multicomponent Reaction for the Synthesis of Indolylmalonamides and a Quantitative Binding Study of Catalytically Relevant Lewis Acids

33. Kevin Rodriguez – University of Notre Dame

Phosphorus and Rhodium-Mediated [4+1]-Cycloannulations Towards the Spirooxindole Alkaloid Family

34. Xin Le – Oregon State University

New Aspects of Sulfoxide Chemistry: Interrupted Pummerer Reaction

35. Jacob Porter – Marquette University

Hybrid Lewis Acid/Lewis Base Catalysis for Carbon-Carbon bond formation

36. James Mack – Stanford University

Ruthenium-Catalyzed Remote C–H Hydroxylation of Unprotected Amines: Reaction Development and Mechanistic Considerations

37. Jade Horton – University of Nevada, Reno

Multicomponent One-Pot Reactions Utilizing Alkynes as Linchpins Toward Biologically Active Terpenoids

38. Junyong Kim – UCLA

Total Synthesis of Tubingensin B

39. Yong Wang – Boston College

Asymmetric Radical Cyclopropanation with in situ-Generated Donor Diazo Reagents via Co(II)-Based Metalloradical Catalysis

40. Alfredo Garcia – University of Illinois, Urbana-Champaign

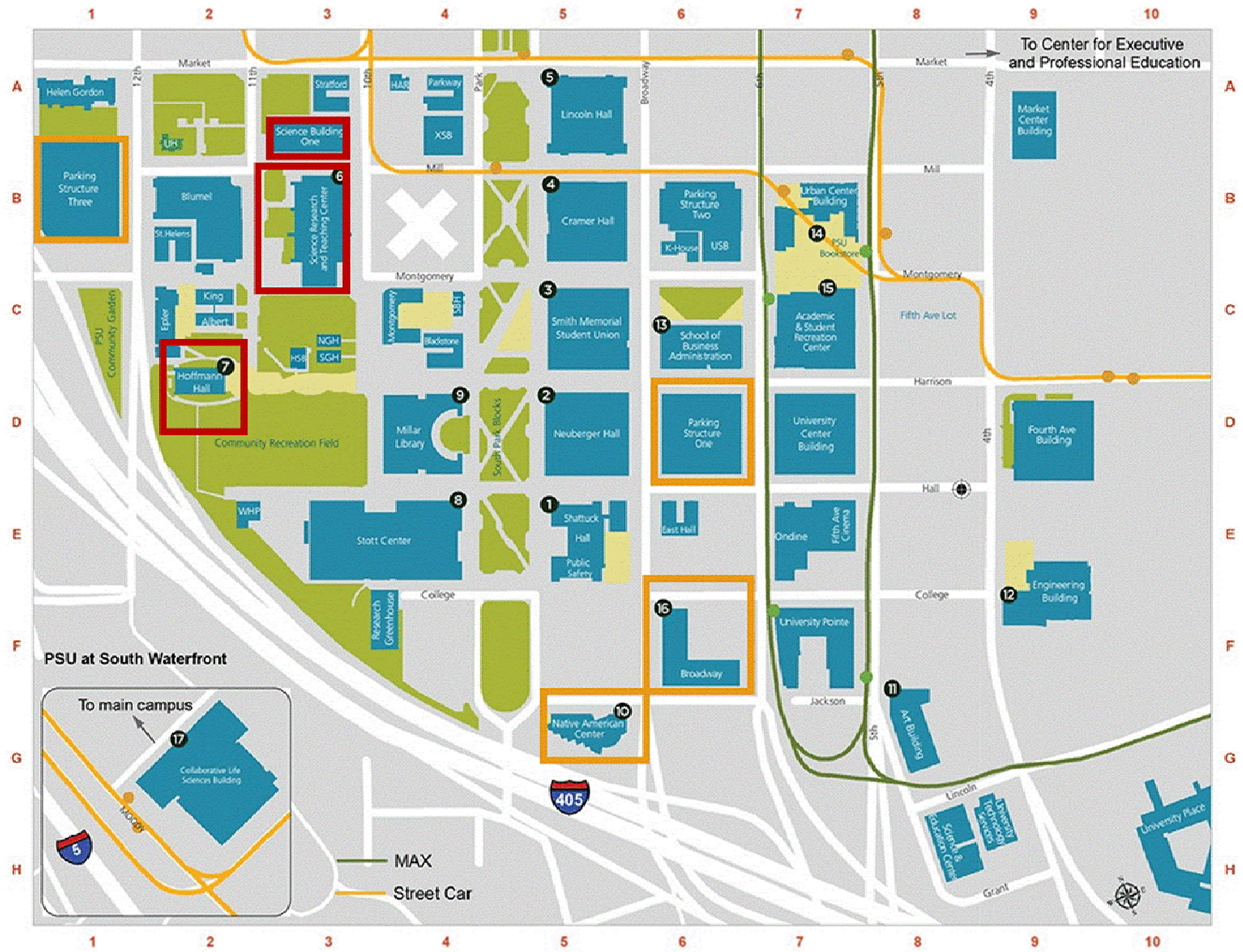
Asymmetric Radical Cyclopropanation with In Situ-Generated Donor Diazo Reagents via Co(II)-Based Metalloradical Catalysis

41. Nicole Zhen – Clackamas High School, Clackamas, OR

Designing Hybrid Lipid-Coated Gold Nanomaterials for Biomedical Applications

DOC Graduate Research Symposium

Portland State University, Portland, OR July 20-23, 201



For interactive campus map: <http://map.pdx.edu/#/map>

<i>Broadway Residence Hall (BDWY)</i>	<i>F6</i>
<i>Native American Student and Community Center (NASCC)</i>	<i>G5</i>
<i>Parking Structure One (P1)</i>	<i>D6</i>
<i>Parking Structure Three (P3)</i>	<i>B1</i>
<i>Science Research and Teaching Center (SRTC)</i>	<i>B3</i>
<i>Science Building One (SB1)</i>	<i>A3</i>
<i>Hoffman Hall</i>	<i>C2</i>

Plenary Speakers

Helen Blackwell, University of Wisconsin, Madison

Tony Chasser, PPG Industries

Chris Davie, GlaxoSmithKline

Timo Ovaska, Connecticut College

Sir Fraser Stoddart, Northwestern University

Dean Toste, University of California, Berkeley

Silas Wang, Gilead

Wendy Young, Genentech

Sponsors

AbbVie

ACS Publications

Amgen

Apeel Sciences

Bristol-Myers Squibb

Boehringer Ingelheim

Celgene

Dow AgroSciences

Genentech

Gilead

GlaxoSmithKline

Incyte

Intel

Janssen

Klarquist

Lilly

Merck

Novartis

OBI

Organic Reactions

Organic Syntheses

OTRADI

Pfizer

PPG Industries

Sigma-Aldrich

TCI America

Thermofisher

Trans World Chemicals

Organizers

Professor P. Andrew Evans

Professor Gary A. Molander

Professor Marilyn Mackiewicz

Professor David Stuart