

DOC Graduate Research Symposium

University of California, Irvine, July 24-27, 2014

THURSDAY, JULY 24

3:00 pm - 6:30 pm Arrival and Dormitory Check-in at Housing Office Mesa Court

5:15 pm - 6:15 pm Registration and Dinner Beckman Center - Atrium

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

6:15 - 6:30 pm **Welcome**

6:30 pm - 7:15 pm **Alanna Shepartz, Yale University** BC - Auditorium

Moving Molecules Through the Plasma Membrane

7:15 pm - 7:25 pm Questions

7:25 pm - 7:45 pm **Jennifer Alleva**

Princeton University BC - Auditorium

Enantioselective α -Arylation of Aldehydes via Cu(II) and Amine Catalysis

7:45 pm - 8:05 pm **Patrick Montgomery**

University of Texas at Austin BC - Auditorium

*Iridium Catalyzed Carbon-Carbon Bond Formation: Evolution of Carbonyl Allylations to
Include β -(Substituted) Allyl Donors*

8:05 pm - 8:25 pm **Niki Patel** BC - Auditorium

Lehigh University

On the Mechanism of Silver-Catalyzed Decarboxylative Fluorination

8:25 pm - 8:45 pm **Christopher Adams** BC - Auditorium

University of Wisconsin

*Complete Stereodivergence in the Synthesis of 2-Amino-1,3-Diols from Allenes:
Development and Synthetic Applications*

8:45 pm - 9:05 pm **Alan Cherney** BC - Auditorium

California Institute of Technology

Nickel-Catalyzed Asymmetric Reductive Cross-Coupling of Benzyl Chlorides

9:15 pm - 11:45 pm Reception

Beckman Center - Atrium

FRIDAY, JULY 25 *Presiding: P. Andrew Evans, Queen's University*

8:15 am - 9:00 am Continental Breakfast BC - Atrium

9:00 am - 9:45 am **Lisa Marcaurelle, H3 Biomedicine** BC - Auditorium

Diversity-Oriented Synthesis for Oncology Drug Discovery

9:45 am - 9:55 am Questions

9:55 am - 10:15 am **Joel Smith** BC - Auditorium

University of California, Los Angeles

Total Synthesis of the Akuammiline Alkaloid Picrinine

10:15 am – 10:40 am Coffee Break BC - Atrium
10:40 am - 11:00 am **DaWeon Ryu** BC - Auditorium

University of Pennsylvania

Synthesis of α -Trifluoromethylated Alkylborons

11:00 am - 11:20 am **Xin Hong** BC - Auditorium

University of California, Los Angeles

Origins of Switchable Chemoselectivity of Ni-Catalyzed C-O Activations of Aryl Esters with Phosphine Ligands

11:20 am – 11:40 am **Matthew Golder** BC - Auditorium

Boston University

Bottom-Up Synthesis of Carbon Nanotube Fragments

11:40 am – 12:00 pm **Group Photograph** BC - Atrium

12:00 pm - 2:30 pm Lunch and **Poster Session 1** BC - Atrium

2:30 pm - 5:00 pm **WORKSHOP 1: Academic Life:** Gary Molander BC - Auditorium

Robert Lees, NIGMS

Sonja Krane, ACS Publications

Andrew Evans, Queen's University

Timothy Clark, University of San Diego, Vy Dong, University of California, Irvine, Tim Swager, MIT, Alanna Shepartz, Yale

FRIDAY EVENING *Presiding: Gary A. Molander, University of Pennsylvania*

5:00 pm - 6:30 pm Dinner BC – Dining Hall

6:30 pm - 7:15 pm **Tim Swager, MIT** BC - Auditorium

Organic Electronics for Chemical Sensors

7:15 pm - 7:25 pm Questions

7:30 - 9:30 pm **WORKSHOP 2: Industrial Life** BC – Auditorium/Dining Room

Group A (*Gary Molander*)

John Flygare, Genentech

John Chan, Aspira Scientific

Margaret Faul, Amgen

Neal Sach, Pfizer

Phieng Siliphaivanh, Merck

Tyler Wilson, Gilead

Daniel Caspi, AbbVie

Ian Davies, Merck

Group B (*P. Andrew Evans*)

Lisa Marcaurette, H3 Biomedicine

David St. Jean, Amgen

Ben Graetz, Gilead

Benjamin Sherry, Merck

Jason Spruell, Milliken

Rob Todd, Sigma-Aldrich

Lamont Terrell, GlaxoSmithKline

9:30 pm – 11:45 pm Reception BC - Atrium

SATURDAY, JULY 26 *Presiding: Vy Dong, University of California, Irvine*

8:30 am - 9:00 am Continental Breakfast BC - Atrium

9:00 am - 9:45 am **Margaret Faul, Amgen** BC - Auditorium

Challenges in Pharmaceutical Process Development

9:45 am - 9:55 am Questions

9:55 am - 10:15 am **Stephen Murphy** BC - Auditorium

University of Toronto

A Metal-Organic Cooperative Catalysis Strategy for Transfer Hydroformylation

10:15 am - 10:40 am Coffee Break BC - Atrium

10:40 am - 11:00 am **Yufan Liang** BC - Auditorium

California Institute of Technology

Catalytic Asymmetric Synthesis of Tertiary Alkyl Fluorides: Negishi Cross-Couplings of Racemic α,α -Dihaloketones

11:00 am - 11:20 am **Alina Borovika** BC - Auditorium

University of Michigan

Advances in Bronsted Acid Catalysis: Reactions of Oxocarbenium Ions

11:20 am - 11:40 am **Zhongda Pan** BC - Auditorium

University of Minnesota

Metal-Free Intramolecular Aminocyanation of Alkenes via N-CN Bond Cleavage

11:40 am - 12:00 pm **Michael Harris** BC - Auditorium

University of California, Irvine

Enantioselective Synthesis of Methylenecyclopentanes by Intramolecular Nickel-Catalyzed Alkyl Heck Reactions

12:00 pm - 2:30 pm Lunch and **Poster Session 2** BC - Atrium

SATURDAY, AFTERNOON *Presiding: Gary A. Molander, University of Pennsylvania*

2:30 pm - 3:15 pm **Vy Dong, University of California, Irvine**

A Few of My Favorite Rings: Catalytic Cycles Inspired by Macrocycles

3:15 pm - 3:25 pm Questions

3:25 pm - 3:45 pm **Wei Zhao** BC - Auditorium

Pennsylvania State University

Phosphorus(III)-Mediated Geminal Difunctionalization of 1,2-Dicarbonyl Compounds

3:45 pm - 4:10 pm Coffee Break BC - Atrium

4:10 pm - 4:30 pm **Patrick Fier** BC - Auditorium

University of California, Berkeley

Site-Selective C-H Fluorination of Pyridines and Diazines: Development and Applications

4:30 pm - 4:50 pm **Joseph Awino** BC - Auditorium

Iowa State University

*Protein-Mimicking Molecularly Imprinted Nanoparticles (MINPs) with Tailored,
Functionalized, Modifiable Binding Pockets*

4:50 pm – 5:10 pm **Phillip Milner** BC - Auditorium
Massachusetts Institute of Technology

The Palladium-Catalyzed Fluorination of Aryl (Pseudo)Halides

5:10 pm – 5:30pm **Anthony DiLauro** BC - Auditorium
Pennsylvania State University

The Design and Synthesis of Depolymerizable Polymers

5:45 pm - 10:30 pm Dinner in Newport Beach

SUNDAY, JULY 27 *Presiding: P. Andrew Evans, Queen's University*

8:15 am - 9:00 am Continental Breakfast BC - Atrium

9:00 am - 9:45 am **Timothy Clark** BC - Auditorium
University of San Diego

*Amine- and Phosphine-Directed C-H Borylation Reactions: from Glucose Sensors to
Organocatalysts*

9:45 am - 9:55 am Questions

9:55 am - 10:15 am **Michael Melicher** BC - Auditorium
Yale University

Designing Saccharide Binding beta-Peptide Bundles

10:15 am – 10:40 am Coffee Break BC - Auditorium

10:40 am - 11:00 am **Njamkou Noucti** BC - Auditorium
University of North Carolina at Chapel Hill

Stereoselective Cycloadditions of Ene–Allenes

11:00 am - 11:20 am **James Checco** BC - Auditorium
University of Wisconsin Madison

*Peptide Foldamer Mimicry of the Z-Domain Scaffold: Targeting Topologically
Complex Protein Surfaces using α/β -Peptides*

11:20 am – 11:40 am **Timothy Gehan** BC - Auditorium
University of Massachusetts Amherst

*From Molecular to Mesoscale: Self-Assembly of Organic Semiconducting Spheres for
Organic Photovoltaics*

11:40 am - 12:00 pm **Ryan Spencer** BC - Auditorium
University of California, Irvine

Amyloid Origami: Supramolecular Assemblies of Amyloidogenic Peptides

12:00 pm - 1:00 pm Lunch BC - Atrium

1:30 pm Depart

FRIDAY, JULY 25: POSTER SESSION 1

1. Thomas Ghebreghiorgis, University of Florida

Comparative and Mechanistic Studies of Au-Catalyzed Dehydrative Cyclizations of Monoallylic Diols

2. Raghida Bou Zerdan, University of Florida

Structure-Property-Function Relationships of "Information-Rich" π -Conjugated Molecules for Organic Electronics"

3. Tomass Baikstis, University of Liverpool

Synthetic Studies Towards Sesquiterpene Lactone Repin and Rhodium-Catalysed [(3+2)+2] Carbocyclisation of Silyl Substituted Alkenes

4. Scott Hickey, UC Berkeley

Synthesis of S-Adenosylmethionine (SAM) Analogs and Development of High-Throughput Screens to Target SAM-I Riboswitches

5. Carissa Hampton, University of Missouri-Columbia

Mechanistic Studies and Scope of the Regiodivergent Synthesis of 1- and 2- Arylsulfonyl 1,3-Dienes

6. Nandini Vallavoju, North Dakota State University

Enantioselective intramolecular [2+2] Photocycloaddition of Coumarin Derivatives Mediated by Thiourea Organo-Photocatalysis.

7. Joshua Fishman, UW-Madison

Polyoxazinones: The First Degradable and Functionalizable ROMP Polymer

8. Megha Karki, University of Idaho

New DMSO-based Oxidative Synthetic Methods

9. Rob Ziegler, Boston University

Development of an Enantioselective Alkaloid-Pyrone Annulation: Synthesis of Pleiomaltinine

10. Russell Winkel, University of Florida

Synthesis and Photophysical Properties of trans-Platinum Acetylide Complexes Featuring N-Heterocyclic Carbene Ligands.

11. Wesley Farrell, University of Maryland

On-Demand Synthesis and Utilization of Isothiocyanates (S=C=NR) via Molybdenum Catalyzed Sulfur-Atom Transfer

12. Jesse McAtee, University of Delaware

Allylsilanes in High Yield from Terminal Alkenes Using a Second-Generation Silyl-Heck Catalyst.

SATURDAY, JULY 26: POSTER SESSION 2

13. Travis Blum, University of Wisconsin-Madison

Photocatalytic Synthesis of Dihydrobenzofurans by Oxidative [3+2] Cycloaddition of Phenols

14. Khanh Ha, University of Florida

Development of Strategies for Difficult Coupling and Macro-Cyclization of Peptides

15. Ashley Jolly, The University of Alabama

Probing the Binding Properties of Polyelectrolytes as Supramolecular Hosts

16. Lindsey Cullen, University of Illinois at Urbana-Champaign

Development of an Asymmetric Phase Transfer Catalyzed [2,3]-Wittig Rearrangement Using Computer Guided Catalyst Design"

17. Jacob MacDonald, University of California, Davis

The Synthesis of a Diverse Oxindole Library and Counterion Effects in the Catalytic Stereoselective Synthesis of 2,3'-Pyrrolidiny Spirooxindole

18. Fanke Meng, Boston College

Cu-Catalyzed Synthesis of 2-Boron-Substituted Allylcopper Complexes and their in situ Additions to Carbonyls

19. Brian Leon, University of California, Santa Cruz

Abysomicin II Reactivates Latent HIV-1 by a PKC and HDAC- Independent Mechanism

20. Zachary Miller, University of Michigan

Advances in Regioselective Allene Coupling Reactions

21. Gidget Tay, University of California, Irvine

Silyl Enol Ether Prins Cyclization: Diastereoselective Formation of Highly Substituted Tetrahydropyran-4-one

22. Jennifer Pitzen, University of California, Irvine

Progress Towards the Total Synthesis of Welwitindolinone C

23. Gregg Schwarzwald, University of California, Irvine

Progress Toward the Synthesis of Exiguaquinol

24. Qi Zhou, University of Delaware

Nickel-Catalyzed Enantiospecific Carbon-Carbon/Carbon-Boron Bond Formation via Carbon-Oxygen Bond Activation