

# **DOC Graduate Research Symposium**

## **University of Delaware, Newark, July 25-28, 2013**

### **THURSDAY, JULY 25**

3:00 pm - 6:30 pm      Arrival and Dormitory Check-in at Location      Christiana Commons  
5:30 pm - 6:30 pm      Registration and Dinner      Clayton Hall, Lobby and Rm 120

### **THURSDAY EVENING** *Presiding: P. Andrew Evans, Queen's University*

6:30 pm - 7:15 pm      **Professor Michael J. Krische**      Clayton Hall, Rm 125  
University of Texas at Austin

#### *Formation of C-C Bonds via Catalytic Hydrogenation and Transfer Hydrogenation*

7:15 pm - 7:25 pm      Questions

7:25 pm - 7:45 pm      **David E. Mortenson**      Clayton Hall, Rm 125  
University of Wisconsin-Madison

#### *Study of Nonnatural Amino Acids in the Context of Native Protein Structure Using X-ray Crystallographic and Biophysical Methods*

7:45 pm - 8:05 pm      **Michael T. Pirnot**      Clayton Hall, Rm 125  
Princeton University

#### *Photoredox Activation for the Direct $\beta$ -Arylation of Aldehydes and Ketones*

8:05 pm - 8:25 pm      **Elizabeth L Noey**      Clayton Hall, Rm 125  
University of California, Los Angeles

#### *Computational Study of Ketoreductase Enantioselectivity*

8:25 pm - 8:45 pm      **Nathan L. Strutt**      Clayton Hall, Rm 125  
Northwestern University

#### *Novel Porous Materials Utilizing Pillararene Macrocycles*

8:45 pm - 9:05 pm      **Jonathan K. Lam**      Clayton Hall, Rm 125  
University of California, Irvine

#### *Study and Application of Himbert Cycloaddition: A Strategy for the Rapid Generation of Molecular Complexity*

9:15 pm - 11:45 pm      Reception      Clayton Hall, Lobby

### **FRIDAY, JULY 26** *Presiding: Gary Molander, University of Pennsylvania*

8:15 am - 9:00 am      Continental breakfast      Clayton Hall, Lobby

9:00 am - 9:45 am      **Dr. Ian Mangion**      Clayton Hall, Rm 125  
Merck

#### *Suvorexant (MK-4305): Chemistry Development from Pre-Clinical to Filing*

9:45 am - 9:55 am      Questions

9:55 am - 10:15 am      **Matthew S. Baker**      Clayton Hall, Rm 125  
Pennsylvania State University

*Quinone Methide Based Amplification and its Application to Activity-Based Detection*

10:15 am – 10:40 am Coffee Break Clayton Hall, Lobby

10:40 am - 11:00 am **Emma L. McInturff** Clayton Hall, Rm 125

University of Texas at Austin

*Ruthenium-Catalyzed Croylation using Butadiene: Chiral Anion Dependent Diastereo- and Enantioselectivity*

11:00 pm - 11:20 am **Yu Zhao** Clayton Hall, Rm 125

Washington State University, Pullman

*Development and Evaluation of New Controllable H<sub>2</sub>S Donors*

11:20 pm – 11:40 am **Danielle M. McAtee** Clayton Hall, Rm 125

University of Delaware

*Stereospecific, Transition Metal-Catalyzed Cross Couplings of Ammonium Salts via Activation of C–N Bonds*

11:40 pm - Noon **Group Photograph** TBD

12:00 pm - 3:00 pm Lunch and **Poster Session 1** Clayton Hall, Rm 120 and Lobby

3:00 pm - 5:00 pm **WORKSHOP 1: Academic Life:** P. Andrew Evans Clayton Hall, Rm 125

Gary A. Molander, University of Pennsylvania

Sonja Krane, ACS Publications

Robert Lees, NIGMS

*Michael J. Krische (UT), Malika Jeffries-EL, Jeffrey B. Johnson (Hope), Sujata Bhatia (Harvard) and John T. Koh (UD)*

**FRIDAY EVENING** *Presiding: Joe Fox, University of Delaware*

5:00 pm - 6:30 pm Dinner Clayton Hall, Rm 120

6:30 pm - 7:15 pm **Professor Malika Jeffries-EL** Clayton Hall, Rm 125

Iowa State University

*Synthesis of Extended  $\pi$ -Conjugated Materials for Organic Semiconducting Applications*

7:15 pm - 7:25 pm Questions

7:30-9:30 **WORKSHOP 2: Industrial Life:** Gary Molander Clayton Hall, Rm 125

**Group A** (Gary Molander)

John Flygare, Genentech

Milana Maletic, Merck

Laurie Schenkel, Amgen

Chris Butler, Pfizer

Benoit Cardinal-David, AbbVie

William Leong, Celgene

**Group B** (P. Andrew Evans)

Lisa Marcaurette, H3 Biomedicine

David St. Jean, Amgen

Shashank Shekhar, AbbVie

Ian Mangion/Ian Davies, Merck

Gregg Kottas, Universal Display

Rob Todd, Sigma-Aldrich

9:30 pm – 11:45 pm Reception Clayton Hall, Lobby

**SATURDAY, JULY 27** *Presiding: John Koh, University of Delaware*

8:30 am - 9:00 am Continental breakfast Clayton Hall, Lobby

9:00 am - 9:45 am **Dr John Flygare** Clayton Hall, Rm 125  
Genentech

*Protein-Protein Interactions and Apoptosis in Cancer Cells*

9:45 am - 9:55 am Questions

9:55 am - 10:15 am **Tian Qin** Clayton Hall, Rm 125  
Boston University

*Studies Towards the Synthesis of Tetrahydroxanthone Natural Products*

10:15 am - 10:40 am Coffee Break Clayton Hall, Lobby

10:40 am - 11:00 am **Nitasha R. Bennett** Clayton Hall, Rm 125  
University of Wisconsin-Madison

*Investigating Mechanisms of B Cell Antigen Recognition with Synthetic Multivalent Ligands*

11:00 am - 11:20 am **Thomas J. A. Graham** Clayton Hall, Rm 125  
Princeton University

*Enantioselective Labeling of Organic Molecules with Fluorine-18*

11:20 am - 11:40 am **Xin Su** Clayton Hall, Rm 125  
Dartmouth College

*Hydrazone-Based Rotary Switches: From Molecules to Systems*

11:40 am - 12:10 am **Corinne N. Foley** Clayton Hall, Rm 125  
Columbia University

*A New Approach to the Rapid Synthesis of Polypropionate Stereotriads*

12:15 pm - 3:00 pm Lunch and **Poster Session 2** Clayton Hall, Rm 120 and Lobby

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

3:20 pm - 3:40 pm **Brian Gold** Clayton Hall, Rm 125  
Florida State University

*Moderating Strain without Sacrificing Reactivity: Fast and Tunable Noncatalyzed Click  
Cycloadditions via Stereoelectronically Controlled Transition State Stabilization*

3:40 pm - 4:00 pm **Yongming Deng** Clayton Hall, Rm 125  
Miami University, Ohio

*Arylamine-Catalyzed Enamine Formation: Cooperative Catalysis with Arylamines and Acids*

4:00 pm - 4:20 pm **Sandra M. King** Clayton Hall, Rm 125  
Yale University

*Total Syntheses of Acutumine and Hasubanan Alkaloids*

4:20 pm - 4:40 pm **Elango Kumarasamy** Clayton Hall, Rm 125  
North Dakota State University

*Light Induced Stereospecific reactions of Atropisomeric 2-Pyridones*

4:40 pm – 5:00 pm     **Jeffrey C. Holder**     Clayton Hall, Rm 125  
California Institute of Technology

*The Development of a Palladium-Catalyzed Asymmetric Conjugate Addition of Arylboronic Acids to Conjugate Acceptors*

6:30 pm - 22:30 pm     Dinner in Newark

**SUNDAY, JULY 28** *Presiding: Gary Molander, University of Pennsylvania*

8:15 am - 9:00 am     Continental breakfast     Clayton Hall, Lobby

9:00 am - 9:45 am     **Professor Jeffrey B. Johnson**     Clayton Hall, Rm 125  
Hope College

*Transition Metal-Catalyzed Activation of C-C Single Bonds: Mechanistic Understanding Leading to New Methodologies*

9:45 am - 9:55 am     Questions

9:55 am - 10:15 am     **Nicholas R. Babij**     Clayton Hall, Rm 125  
University of Michigan

*New Stereoselective Annulation Reactions for the Asymmetric Synthesis of Tricyclic Guanidine Alkaloids*

10:15 am – 10:40 am     Coffee Break     Clayton Hall, Lobby

10:40 am - 11:00 am     **Michael T. Corbett**     Clayton Hall, Rm 125  
The University of North Carolina at Chapel Hill

*Dynamic Kinetic Asymmetric Transformations of  $\beta$ -Stereogenic  $\alpha$ -Keto Esters and Their Congeners*

11:00 pm - 11:20 pm     **Charles P. Frazier**     Clayton Hall, Rm 125  
University of California, Santa Barbara

*Mild Generation of Nitroso Compounds via a Copper-Catalyzed Aerobic Oxidation of N-Substituted Hydroxylamines*

11:20 pm – 11:40 pm     **Laura S. Kocsis**     Clayton Hall, Rm 125  
University of Pittsburgh

*A Dehydrogenative Dehydro-Diels-Alder Reaction and its Application to Fluorescent Tools and Natural Product Synthesis*

11:40 pm - 12:10 am     **Han Zhang**     Clayton Hall, Rm 125  
University of Delaware

*Instantaneous Hydrogel Formation using the Tetrazine-TCO ligation*

12:15 pm - 2:00 pm     Lunch     Clayton Hall, Rm 120

2:00 pm     Depart

**FRIDAY, JULY 26: POSTER SESSION 1 (Clayton Hall, Lobby)**

- 1. Maria Del Rosario Amado Sierra, Michigan State University**  
*Carbon-to-Carbon [1,2]-Silyl Migration in Alpha Silyl Allylic Alcohols Triggered by Epoxidation*
- 2. Kolawole Ayinuola, University of Arkansas**  
*Novel N-Based Rearrangements*
- 3. Aaron Bedermann, Colorado State**  
*Progress Toward the Total Synthesis of Phomoidride D*
- 4. Peter Carlsen, University of Rochester**  
*Studies Toward the Total Synthesis of Tetrapetalone A*
- 5. Peter Gildner, University of Delaware**  
*The Copper Catalyzed C-Alkylation of Nitroalkanes*
- 6. Paul Homnick, University of Massachusetts Amherst**  
*Systematic Engineering of Frontier Molecular Orbital Energies in Fluorenone-Based Chromophores using a Modular Synthetic Approach*
- 7. Jinhua Huang, Texas A&M University**  
*Total Synthesis and Structure–Activity Relationship Study of the Potent cAMP Signaling Agonist (-)-Alotaketol A*
- 8. Amber Johnson, University of California Riverside**  
*Endohedrally-Functionalized Metal-Organic Cages*
- 9. Se Ryeon Lee, University of Michigan**  
*Modifying Ni Catalysts for Improved Chain-Growth Synthesis of Conjugated Polymers*
- 10. Brendan Monks, Indiana University**  
*Intercepting Carbopalladium Species Prior to  $\beta$ -Hydride Elimination: New Reactions in Palladium Mediated Cross-Couplings*
- 11. Tathagata Mukherjee, Texas A&M University**  
*Spectator Metal-Driven Preorganization in Organocatalysis*
- 12. Stephen Ojo, The University of Liverpool**  
*Access to Biologically Active Natural Products via Rhodium(I)-Catalysed Carbocyclisation Reactions: Highly Diastereoselective Construction of Unique Bicyclic Rings*
- 13. Michelle Riener, University of North Carolina at Chapel Hill**  
*Synthesis of Cyclobutane Lignans via an Organic Single Electron Oxidant-Electron Relay System*

**SATURDAY, JULY 27: POSTER SESSION 2 (Clayton Hall, Lobby)**

**14. Muhammed Salih, Oregon State University**

*Synthesis and Chiral Properties of the Diarylether Heptanoid Natural Products*

**15. Gevorg Sargsyan, University of Wyoming**

*DNA-Porphyrin Assemblies with Modular Chiroptical Properties*

**16. Amanda Silberstein, University of California, Los Angeles**

*Nickel and Iron-Catalyzed Cross-Couplings*

**17. Harathi Srinivas, University of Delaware**

*C-O Functionalization - Enantioselective and Stereospecific Reactions for C-C Bond Formation*

**18. Benjamin Strick, Northwestern University**

*The Discovery and Development of Transformations Involving N-Allylhydrazides*

**19. Sebastian Temme, Brandeis University**

*Glycocluster Mimics of HIV env Obtained by Directed Evolution: Design and Synthesis of HIV Vaccine Candidates*

**20. Caitlin Tressler, University of Delaware**

*Perfluoro-tert-Butyl-Hydroxyproline for <sup>19</sup>F Detection of Abl Kinase Activity*

**21. Nagarathanam Veerasamy, Oregon State University**

*Enantioselective Synthesis of Quinolizidine containing Lycopodium Alkaloids*

**22. Alexander Wagner, University of California, Irvine**

*Determination of Absolute Configuration of Secondary Alcohols Using the Competing Enantioselective Conversion (CEC) Method*

**23. Erin Wilson, University of Notre Dame**

*Phosphorus-Mediated Rearrangements for the Advancement of C-N Bond Formation Toward the Syntheses of Amides and N-Toluenesulfonyl Amidines*

**24. Sean Wilson, University of California, Davis**

*Synthesis, Structure and Hydrogen-bonding Interactions of Silanediols for Enantioselective Catalysis*

**25. Youwei, Xie, University of Pittsburgh**

*Stereoselective Synthesis from Non-Stereoselective Reactions*