

Organic Reactions, Inc.
Previous Lecturers

2009 - Benjamin List, Max Planck Institute, Mülheim, Germany

2005 - Märk Rizzacasa, University of Melbourne, Australia

2002 - Shu Kobayashi, University of Tokyo, Japan

1999 - Alois Fürstner, Max Planck Institute, Mülheim, Germany

1997 - Paul Knochel, University of Marburg, Germany

1995 - Philip Kocienski, University of Southampton, England

1993 - Ian Paterson, University of Cambridge, England

1991 - Manfred Reetz, University of Marburg, Germany

1989 - Hisashi Yamamoto, Nagoya University, Japan

Organic Reactions Lectureship Series

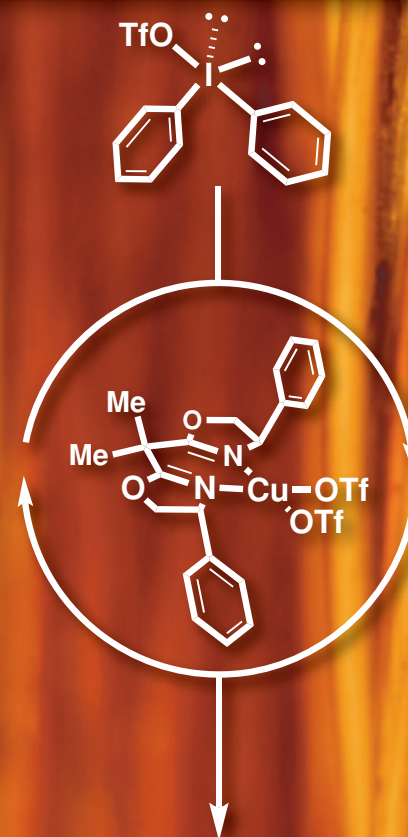
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Dr. Matthew

Gaunt

University of Cambridge, United Kingdom

- Pennsylvania State University
- University of Pittsburgh
- Yale University
- University of Montreal
- Colorado State University
- Iowa State University
- University of Michigan
- University of Illinois - Urbana-Champaign



New Copper Catalyzed Reactions



Matthew Gaunt

Dr. Matthew Gaunt graduated from the University of Birmingham with a B.Sc. honours degree in Chemistry. He was awarded a Ph.D. from the University of Cambridge after studies with Dr. Jonathan Spencer, before moving to the University of Pennsylvania for postdoctoral studies with Professor Amos B Smith III, as a GlaxoWellcome Fellow. He returned to the UK as a Junior College Research Fellow with Professor Steven Ley at the University of Cambridge in 2001. Dr. Matthew Gaunt started his independent research career in October 2003 at the University of Cambridge.

He was awarded a Royal Society University Research Fellowship from 2004-2009, and in October 2006 he was appointed as a Lecturer at the University of Cambridge. In October 2010 he was promoted to Reader in Chemical Synthesis. He currently holds an ERC Research Fellowship and an EPSRC Leadership Fellowship.

Dr. Gaunt's research interests focus on organic synthesis and catalysis. He has made key contributions to the fields of metal-catalyzed C–H bond functionalization and enantioselective organocatalysis. In particular, within the field of organocatalysis his group introduced the area of enantioselective ammonium ylide catalysis using cinchona alkaloids for a range of cyclopropanation chemistry, developed secondary amine catalyzed sigmatropic rearrangements, and a catalytic enantioselective dearomatization strategy that enables simple planar arenes to be transformed into complex non-racemic polycyclic molecules in a single step. The Gaunt group have also made significant advances in developing room temperature palladium(II)-catalyzed C–H bond functionalization reactions that include indole and pyrrole alkenylations, imine arylations and amine directed carbonylations, as well as applications in total synthesis.

A major focus of his latest work deals with the development of new reactivity concepts centered on the combination of hypervalent iodine compounds with copper catalysts. The key mechanistic rationale is based on the generation of a highly electrophilic copper(III)-aryl species that they have found undergoes a variety of arylation reactions. For example, controllable regioselective indole arylations, *para*-selective arylation of electron rich arenes, and a remarkable *meta*-selective arylation of anilide and arylcarbonyl compounds. More recently, they have expanded the scope of this reaction concept to enantioselective catalysis wherein they demonstrated that chiral copper-catalysts could affect the α -arylation of carbonyl compounds. The group is focussed on expanding the breadth of this new reactivity concept and the Organic Reactions Lecture will feature many new aspects of this chemistry.

In recognition of their work, Dr Gaunt has been the recipient of the AstraZeneca Research Award (2009), the Novartis Early Career Award for Organic Chemistry (2008-2011), the Eli Lilly Young Lecturer Award (2009), the Chemical Society Reviews Emerging Investigator Award (2009), and the Dow Pharma Prize for creativity in Chiral Chemistry (2005). He recently joined the Editorial Board of the RSC journal, *Chemical Science* as Associate Editor and is a member of the Scientific Advisory Board of *Advanced Synthesis and Catalysis*.

Organic Reactions

Organic Reactions was conceptualized at the 1939 National Organic Symposium as the brainchild of Roger Adams and some of the *Organic Syntheses* editorial board members. *Organic Reactions* was conceived as a collection of articles about specific reactions with which the authors had firsthand experience. The unique features of *Organic Reactions* distinguishing it from other review vehicles include exhaustive literature surveys, complete compilation of extant examples and representative, detailed experimental procedures.

Adams served as president and editor in chief from 1942 until 1960 when Volume 10 was published. A. C. Cope succeeded Adams until his death in 1966, when W. G. Dauben assumed that position followed by A. S. Kende, L. A. Paquette, L. E. Overman, and currently S. E. Denmark. The original editorial board was separated into a board of editors and a board of directors as the responsibilities of managing the publication and its functions grew.

In defining the goals and mission of *Organic Reactions*, Adams wrote: "In the course of nearly every program of research in organic chemistry the investigator finds it necessary to use several of the better-known synthetic reactions. To discover the optimum conditions for the application of even the most familiar one to a compound not previously subjected to the reaction often requires an extensive search of the literature; even then a series of experiments may be necessary...The volumes of *Organic Reactions* are collections of chapters each devoted to a single reaction, or a definite phase of a reaction, of wide applicability. The subjects are presented from the preparative viewpoint, and particular attention is given to limitations, interfering influences, effects of structure, and the selection of experimental techniques. Each chapter includes several detailed procedures illustrating the significant modifications of the method."

From 1942 to the 1980's the challenge that *Organic Reactions* successfully addressed was the difficulty in compiling an authoritative summary of preparatively useful organic reactions from the primary literature. However, as abstracting services entered the electronic age, the challenge for the practitioner was no longer to locate all of the literature on the subject, but rather, how to critically and efficiently digest it. *Organic Reactions* chapters are much more than a surfeit of primary references; they constitute a distillation of an avalanche of information into the knowledge needed to correctly implement a reaction. It is in this capacity, namely to provide focused, scholarly, and comprehensive overviews of a given transformation, that *Organic Reactions* takes on even greater significance for the practice of chemical experimentation in the 21st century.

The authors of articles in *Organic Reactions* receive no royalties, and the editors do their work as a public service. The success of this enterprise involves the dedicated efforts of many prominent chemists who devote their efforts to the time consuming job of editing of chapters and producing volumes. It is remarkable that Adams' legacy of interest in organic chemistry, in organic chemists, and in students still motivates those who carry this important resource forward.

Scott E. Denmark