For favour of posting

The Chinese University of Hong Kong
Department of Chemistry
Research Seminar Series

Speaker: Dr. Wai-Lung Ng
Department of Chemistry
University of Oxford
U.K.

Title: Chemical intervention in biological systems

<< Abstract >>

In this seminar, the central role of organic chemistry for the interrogation/intervention of biological systems will be discussed. Two examples of such chemical intervention will be given. The first example is the design and synthesis of small-molecule sodium-glucose cotransporter 2 (SGLT2) inhibitors. The combination of modern synthetic methods and cellular assay has enabled us to discover some potent and selective SGLT2 inhibitors as anti-diabetic agents. The second example is the development of a new chemical strategy, namely "post-translational mutagenesis", for studying post-translational modifications of proteins. This strategy makes use of free radical chemistry for selective modification of proteins in aqueous medium. It has provided an entry to structurally–diverse protein scaffolds that are not accessible by traditional biological methods.

Date: 9 September, 2016 (Friday)

Time: 2:30 p.m.

Venue: LT3
Lady Shaw Building

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Contact Person:
Prof. Y.Y. Yeung

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The Chinese University of Hong Kong
Department of Chemistry
Research Seminar Series

Speaker: Prof. Rong-Jie Chein
Institute of Chemistry
Academia Sinica, Taiwan

Title: Chiral Tetrahydrothiophene Ligands in Asymmetric Catalysis

<< *Abstract* >>

Chiral sulfur ligands are becoming a versatile tool in organic chemistry due to the blossomed development achieved in the past years. This presentation describes an expeditious and efficient preparation of enantiopure (thiolan-2-yl)diarylmethanols and the applications of their derivatives to catalytic and asymmetric Corey-Chaykovsky epoxidation, the imino Corey-Chaykovsky aziridination, as well as the first oxathiaborenium catalyzed asymmetric Diels-Alder reaction.

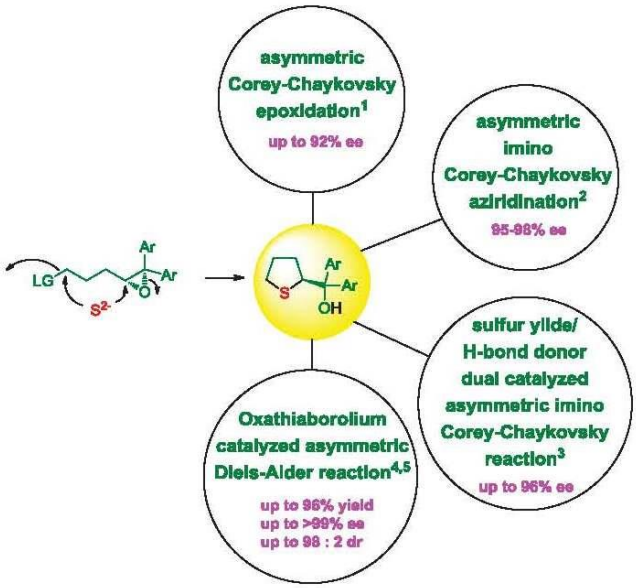

Figure 1. Synthesis and applications of chiral THT ligands

Date: September 22, 2016 (Thursday)

Time: 4:30 p.m.

Venue: L2, Science Centre

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Contact Person:
Prof. Y.Y. Yeung

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Department of Chemistry
Research Seminar Series

Speaker: Prof. Kohji Ohno
Institute for Chemical Research
Kyoto University
Japan

Title: Polymer Brush-Afforded Fine Particles: Synthesis, Self-Assembly, and Biomedical Applications

Date: September 27, 2016 (Tuesday)

Time: 2:30 p.m.

Venue: LT3
Lady Shaw Building

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Contact Person:
Prof. To Ngai

Revised

The Chinese University of Hong Kong
Department of Chemistry
Research Seminar Series

Speaker: Prof. Philip Wai Hong Chan
School of Chemistry, Monash University, Australia
Department of Chemistry, University of Warwick, UK

Title: Transition Metal-Catalyzed Strategies for Complex Molecule Synthesis

Date: September 27, 2016 (Tuesday)

Time: 4:30 p.m.

Venue: Room 158, Science Centre

< Abstract >

In this presentation, we will disclose a selection of our recent contributions toward developing sustainable transition metal-catalyzed methodologies that are practical and of potential use in natural products and functional materials synthesis.[1,2] The talk will cover the current results of an on-going program focused on designing new efficient and atomeconomical synthetic routes to structural targets of current biological and materials interest from readily accessible substrates.[2] For example, we will present a synthetic method to prepare 2,4a-dihydro-1H-fluorenes efficiently from Au(I)-catalyzed cycloisomerization of 1,6-diyne esters (Figure 1).[2b] In this work, the suggested reaction pathway provides rare examples of [2,3]-sigmatropic rearrangement reactivity in this class of compounds as well as the involvement of an in situ formed cyclopropene intermediate in gold catalysis.

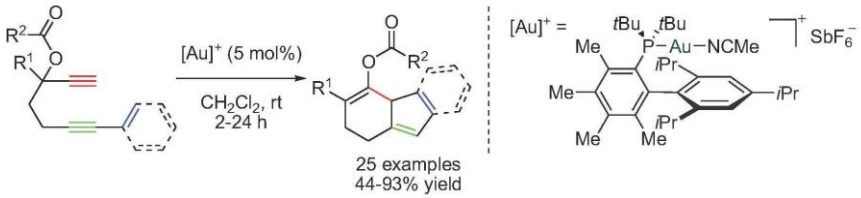

Figure 1. Gold-catalyzed cycloisomerization of 1,6-diyne carbonates and esters to 2,4adihydro-1*H*-fluorenes

References

1) Selected reviews on gold catalysis: (a) Gold Catalysis; Friend, C. M.; Hashmi, A. S. K. Eds. *Acc. Chem. Res.* **2014**, *47*, 729. (b) Hashmi, A. S. K.; Toste, F. D. Eds; *Modern Gold Catalyzed Synthesis*; Wiley-VCH: Weinheim, Germany, 2012.
2) Selected examples: (a) Rao, W.; Susanti, D.; Ayers, B. J.; Chan, P. W. H. J. *Am. Chem. Soc.* **2015**, *137*, 6630. (b) Rao, W.; Koh, M. J.; Li, D.; Hirao, H.; Chan, P. W. H. *J. Am. Chem. Soc.* **2013**, *135*, 7926. (c) Rao, W.; Koh, M. J.; Kothandaraman, P.; Chan, P. W. H. *J. Am. Chem. Soc.* **2012**, *134*, 10811. (d) Rao, W.; Susanti, D.; Chan, P. W. H. *J. Am. Chem. Soc.* **2011**, *133*, 1524. (e) Kothandaraman, P.; Rao, W.; Foo, S. J.; Chan, P. W. H. *Angew. Chem., Int. Ed.* **2010**, *49*, 4619.

Philip Wai Hong Chan received his Bachelor of Science (Honours) degree in chemistry from University of Bristol, UK, in 1995, and D.Phil. degree in organic chemistry from University of Oxford, UK, in 1998 under the supervision of Prof. Mark G. Moloney. He is currently the Monash-Warwick Alliance Professor of Sustainable Chemistry at Monash University, Australia and University of Warwick, UK, a joint appointment between the two institutions as part the Monash-Warwick Alliance, in 2014. His research interests lie within the broad area of sustainable synthetic organic chemistry and its applications to the synthesis of natural products and functional materials.

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