For favour of posting

Revised

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

Speaker: Professor Linhong Deng
Institute of Biomedical Engineering and Health Sciences
Changzhou University

Title: Cell dynamics as key determinants of health and disease

Date: December 11, 2018 (Tuesday)

Time: 10:30 a.m.

Venue: L3
Science Centre

ALL ARE WELCOME

Contact Person:
Prof. Chi Wu

For favour of posting

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

Speaker: Professor Zhang-Jie Shi
Department of Chemistry
Fudan University

Title: Upgrading Cross Coupling for Biaryl Syntheses

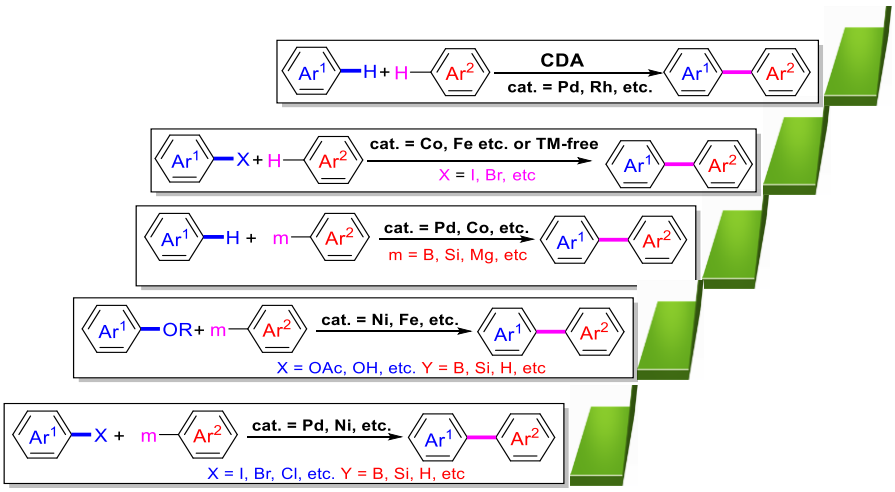
Date: 11 December, 2018 (Tuesday)

Time: 3:30 p.m.

Venue: L3, Science Centre

< Abstract >

Conventional cross coupling is one of the most powerful methods to construct carbon-carbon bonds starting from organohalides and organometallic reagents, catalyzed by late transition-metal catalysts in general.[1] With our and others' efforts, the electrophilic partner can be taken place of by O-based electrophiles.[2] C-H bonds could also applied as coupling partners, coupled with various organometallic reagents, as well as another molecule of C-H bonds.[3] To avoid the utilization of late and heavy transition-metal catalysts, the earth-abundant transition-metal and even metal free catalytic systems were built up to proceed the cross coupling between organohalides and arenes.[4] These studies may lead the evolution of cross coupling in an environmentally benign manner.



References:

1. de Meijere, A., Diederich, F., *Metal-Catalyzed Cross-Coupling*. Wiley-VCH: Weinheim: **2004**.
2. Su, B., Ca, Z.-C., Sh, Z.-J. *Acc. Chem. Res.* **2015**, *48*, 886.
3. Yu, D.-G., Li, B.-J., Shi, Z.-J. *Tetrahedron*, **2012**, *68*, 5130.
4. Sun, C.-L., Li, H., Yu, D.-G., Yu, M., Zhou, X., Lu, X.-Y., Huang, K., Zheng, S.-F., Li, B.-J., Shi, Z.-J. *Nat. Chem.* **2010**, *2*, 1044.
5. Y.-F. Zhang, Shi, Z.-J. *Acc. Chem. Res*. **2018**, asap.

ALL ARE WELCOME

Contact Person:
Prof. Zuowei Xie

For favour of posting

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

Speaker: Professor Xuefeng Jiang
School of Chemistry and Molecular Engineering
East China Normal University

Title: Greenization for Organic Synthesis

Date: December 12, 2018 (Wednesday)

Time: 4:30 p.m.

Venue: L3
Science Centre

ALL ARE WELCOME

Contact Person:
Prof. Henry N.C. Wong

For favour of posting

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

Speaker: Professor Huimin Zhao
Departments of Chemical and Biomolecular Engineering, Chemistry, Biochemistry, and Bioengineering
University of Illinois at Urbana-Champaign

Title: Synthetic Biology: Putting Synthesis into Biology

<< Abstract >>

Synthetic biology is the design of novel or improved biological systems using engineering principles. It is a rapidly growing area with broad applications in medical, chemical, food, and agricultural industries. In this talk, I will highlight our recent work in the development and application of novel foundational synthetic biology tools. Specifically, I will introduce four interrelated stories, including: (1) development of the Illinois Biological Foundry for Advanced Biomanufacturing (iBioFAB) for next-generation synthetic biology applications; (2) development of new strategies and tools for discovery of novel natural products from genomes and metagenomes; (3) development of genome-scale engineering tools for rapid metabolic engineering applications, and (4) integration of biocatalysis and chemical catalysis for synthesis of value-added chemicals.

Date: December 13, 2018 (Thursday)

Time: 10:30 a.m.

Venue: L3
Science Centre

ALL ARE WELCOME

Contact Person:
Prof. Jiang Xia

For favour of posting

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

Speaker: Professor Qilong Shen
Key Laboratory of Organofluorine Chemistry
Shanghai Institute of Organic Chemistry
Chinese Academy of Sciences

Title: New of Fluoroalkylating Reagents: Design, Preparation and Reactivity

Date: December 13, 2018 (Thursday)

Time: 2:30 p.m.

Venue: L3
Science Centre

ALL ARE WELCOME

Contact Person:
Prof. Gavin C. Tsui

New of Fluoroalkylating Reagents: Design, Preparation and Reactivity

Qilong Shen (沈其龙)

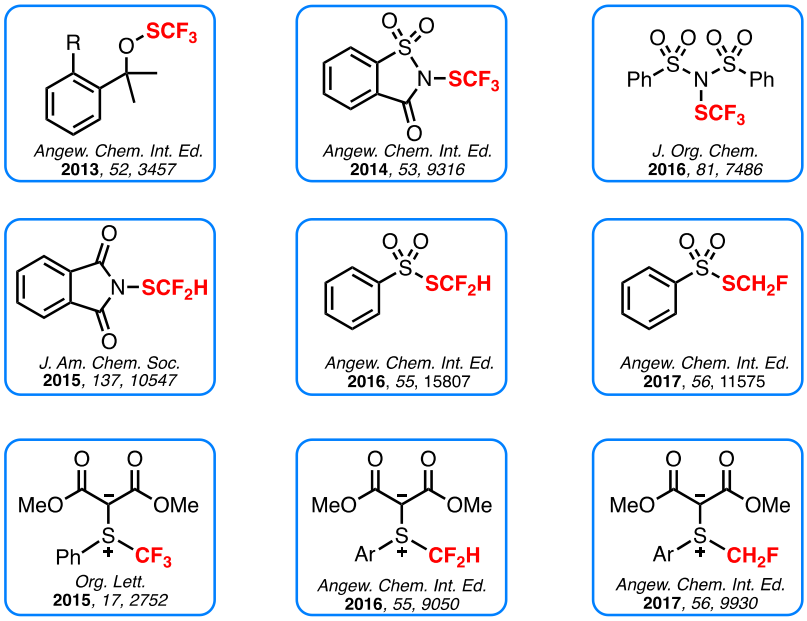
Key Laboratory of Organofluorine Chemistry, Shanghai Institute of Organic Chemistry,Chinese Academy of Sciences, Shanghai 200032, China

Email: shengl@sioc.ac.cn

Due to the well-known “fluorine effect” of the fluorine atom and the fluorinated groups on the chemical, physical and biological properties of a given molecule, incorporation of a fluorine atom or a fluoroalkyl group into has become a routine practise in the development of drugs or agrochemicals. Consequently, development of efficient methods that could late-stage introduction of fluorine or fluorinated groups of the drug molecules have been of intense current interests.

Among the rapidly increasing and powerful fluoroalkylating methods, direct fluoroalkylation of a nucleophile with an electrophilic fluoroalkylating reagent arguably represents one of the most versatile and actively studied methods for the preparation of fluoroalkylated compounds.

Even though some electrophilic fluoroalkylating reagents have been reported, development of novel, easily available and highly reactive electrophilic fluoroalkylating reagents represents an unmeted challenge. In the past eight years, we have discovered several electrophilic fluoroalkylating reagents that allow efficient fluoroalkylation of different nucleophiles under mild conditions. The low cost and structural flexibility of these reagents make them idea agents for late stage fluoroalkylation.



References

1. Liu, T.-F.; Shao, X.-X.; Wu, Y.-M.; Shen, Q. *Angew. Chem. Int. Ed.* **2012**, *51*, 540.
2. Shao, X.-X.; Wang, X.-Q.; Yang, T.; Long Lu, L. Shen, Q. *Angew. Chem. Int. Ed.* **2013**, *52*, 3457.
3. Wang, X.-Q.; Tao Yang, T.; Xiaolin Cheng, X.; Shen, Q. *Angew. Chem. Int. Ed.* **2013**, *52*, 12860.
4. Xu, C.-F.; Ma, B.-Q.; Shen, Q. *Angew. Chem. Int. Ed.* **2014**, *53*, 9316.
5. Hu, F.; Shao, X.-X.; Zu, D.-H.; Lu, L.; Shen, Q. *Angew. Chem. Int. Ed.* **2014**, *53*, 6105.
6. Gu, Y.; Leng, X.-B.; Shen, Q. *Nat. Commun.* **2014**, *5*, 5405.
7. Zhu, D.-H.; Gu, Y.; Lu, L.; Shen, Q. *J. Am. Chem. Soc.* **2015**, *137*, 10547.
8. Wu, J.; Gu, Y.; Leng, X.-B.; Shen, Q. *Angew. Chem. Int. Ed.* **2015**, *54*, 7648.
9. Zhu, D.-H.; Shao, X.-X.; Hong, X.; Lu, L.; Shen, Q. *Angew. Chem. Int. Ed.* **2016**, *55*, 15807.
10. Zhu, J.-S.; Liu, Y.-F.; Shen, Q. *Angew. Chem. Int. Ed.* **2016**, *55*, 9050.
11. Shao, X.-X.; Xu, C.-F.; Lu, L.; Shen, Q. *Acc. Chem. Res.* **2015**, *48*, 1227.

For favour of posting

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

Speaker: Professor Pierre Braunstein
University of Strasbourg – CNRS
France

Title: Selective Metalation of N-Heterocyclic Carbene-Based Pincer Ligands and Catalytic Applications

Date: December 14, 2018 (Friday)

Time: 4:30 p.m.

Venue: L1
Science Centre

ALL ARE WELCOME

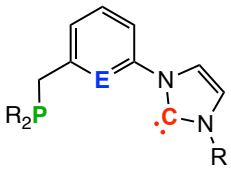
Contact Person:
Prof. Michael F.Y. Kwong

Selective Metalation of *N*-Heterocyclic Carbene-Based Pincer Ligands and Catalytic Applications

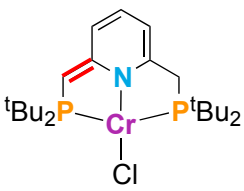
Pierre Braunstein
University of Strasbourg - CNRS
Institute of Chemistry, 4 rue Blaise Pascal, 67081 Strasbourg (France)
braunstein@unistra.fr

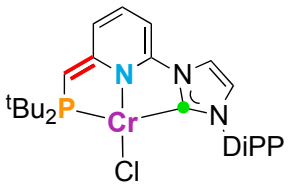
The growing interest for the structural, catalytic and physical properties of coordination/organometallic metal complexes is triggered by their numerous applications, the development of new multifunctional ligands, particularly with constrained geometry, that allow a better control of the metal coordination sphere.[1,2]

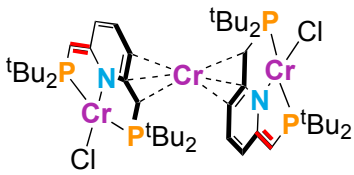
Functional *N*-heterocyclic carbene (NHC) ligands, bearing donor groups with significantly different stereoelectronic properties, are ideal candidates to study the chemoselectivity of their coordination to metal centres.[3] Furthermore, NHC donors can be introduced in pincer-type structures, as shown below where **E** can be **CH** or **N**, thus providing an entry into non-symmetrical pincer ligands.



With such ligands having a CH_2 group in α position to P, their deprotonation followed by metalation can lead to de-aromatized systems and examples will be illustrated in chromium chemistry with application to the catalytic oligomerization of ethylene.[4] Their properties will be compared with those of complexes containing related P,N,P pincers.







1. See e.g. A. A. Danopoulos, P. Braunstein, *Oil & Gas Science and Technology – Rev. IFP Energies nouvelles* – Special Issue in Tribute to Yves Chauvin, **2016,** 71(2), article 24.
2. See e.g. C. Fliedel, A. Ghisolfi, P. Braunstein, *Chem. Rev*. **2016**, *116*, 9237.
3. See e.g. S. Hameury, P. de Frémont, P. Braunstein, *Chem. Soc. Rev.* **2017**, 46, 632 ; V. Charra, P. de Frémont, P. Braunstein, *Coord. Chem. Rev*. **2017**, *341*, 53.
4. T. Simler, A. A. Danopoulos, P. Braunstein, *Chem. Commun*. **2015**, *51*, 10699; T. Simler, A. A. Danopoulos, P. Braunstein, *Angew. Chem. Int. Ed*. **2015**, *54*, 13691.