For favour of posting

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

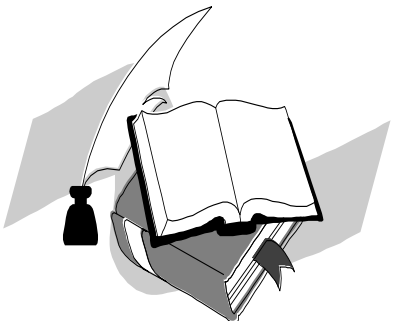
Speaker: Prof. Jeremy K.M. Sanders
Department of Chemistry
University of Cambridge

Title: Thermodynamics and Molecular Recognition: From dynamic combinatorial chemistry to crystal polymorphism

Date: December 1, 2017 (Friday)

Time: 4:30 p.m.

Venue: L1
Science Centre



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Contact Person:
Prof. Y.Y. Yeung

For favour of posting

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

Speaker: Prof. Timothy P. Lodge
Chief Editor, Macromolecules
Department of Chemistry
University of Minnesota

Title: Interplay of Fibril Formation, Gelation, and Phase Separation in Aqueous Cellulose Ether Solutions

Date: December 4, 2017 (Monday)

Time: 10:00 a.m.

Venue: L3
Science Centre

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Contact Person:
Prof. Chi Wu

For favour of posting

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

Speaker: Prof. Juewen Liu
Department of Chemistry
University of Waterloo
Canada

Title: Interfacing DNA with metal ions, metal oxides, and metal nanoparticles

<< Abstract >>

DNA is a polyanion with strong affinity towards metal containing species. We are interested in studying the interaction between DNA and metal for analytical applications. This talk will cover three aspects. 1) In vitro selection of metal-specific DNAzymes. DNAzymes are DNA-based catalysts and we focus on RNA-cleaving DNAzymes. Using lanthanide ions as cofactors, we isolated a suite of new DNAzymes that can selectively detect rare-earth metals. By using phosphorothioate modified DNAzymes, we developed new probes for a few toxic heavy metal ions. 2) The adsorption of DNA by various metal oxides were studied, where the phosphate backbone of DNA is shown to be critical for the adsorption reaction. Using fluorescently labeled DNA, highly sensitive detection of arsenate and hydrogen peroxide was achieved. 3) DNA adsorption by gold nanoparticles is studied as a function of salt concentration and pH. Based on this study, we developed an ultrasensitive method for functionalizing gold surface with DNA.

Date: December 5, 2017 (Tuesday)

Time: 10:30 a.m.

Venue: Room 101
Y.C. Liang Hall (潤昌堂)

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Contact Person:
Prof. S.L. Lam

For favour of posting

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

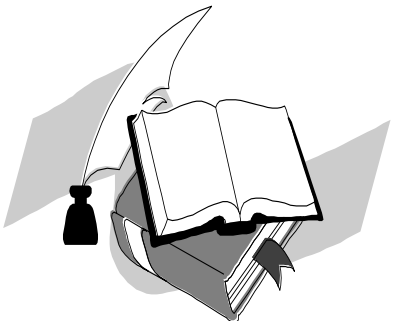
Speaker: Prof. Timothy P. Lodge
Chief Editor, Macromolecules
Department of Chemistry
University of Minnesota

Title: 50 years of Macromolecules; the Promise of Polymers

Date: December 6, 2017 (Wednesday)

Time: 2:30 p.m.

Venue: L4
Science Centre



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Contact Person:
Prof. Chi Wu

For favour of posting

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

Speaker: Mr. Hiu-Chun Lam
Department of Chemistry
University of Adelaide

Title: Biomimetic Total Synthesis of Natural Products

Date: December 8, 2017 (Friday)

Time: 11:00 a.m.

Venue: Room 158
Science Centre

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Contact Person:
Prof. Henry N.C. Wong

For favour of posting

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

Speaker: Prof. Jenn-Kang Hwang
Warshel Institute for Computational Biology
The Chinese University of Hong Kong, Shenzhen

Title: Protein structure, dynamics and evolution: you see one, you see the other two – sort of

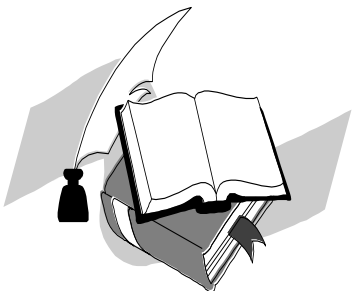
<< Abstract >>

In our recent studies, we found that protein's structural properties, its atomic thermal fluctuations and its residue conservation are directly related to each other – in the sense that, no mechanical model or a multiple sequence alignment is required. These three are so closely related to each other, that, if one of them is available, the other two can be directly inferred from it. For example, if one has the sequence conservation profile of a protein, one can easily infer the rigidity (or flexibility) of its residues, quantitatively or semi-quantitatively; or if one has the information of the atomic thermal fluctuations of the protein, one can easily infer its residue packing, quantitatively or semi-quantitatively. We will also discuss the potential applications based on this structure-dynamics-evolution relationship.

Date: December 8, 2017 (Friday)

Time: 4:30 p.m.

Venue: L1, Science Centre



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Contact Person:
Prof. Jiang Xia

For favour of posting

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

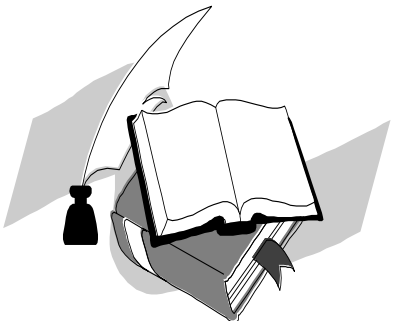
Speaker: Prof. James A. Cowan
Department of Chemistry and Biochemistry
The Ohio State University

Title: Catalytic Metallodrugs. An Inorganic Approach to New Therapeutics

Date: December 15, 2017 (Friday)

Time: 4:30 p.m.

Venue: L1
Science Centre



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Contact Person:
Prof. H.K. Lee

For favour of posting

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

Speaker: Prof. Yan Xia
Department of Chemistry
Stanford University

Title: Building and Breaking Molecular Ladders to Develop Conjugated Functional Materials

<< Abstract >>

Conjugated systems with fused aromatic benzenoid and antiaromatic cyclobutadienoid are intriguing for the understanding of antiaromaticity and potential applications. However, their syntheses have been challenging and limited. We developed an efficient and versatile strategy to synthesize a large variety of polycyclic conjugated hydrocarbons (PCHs) containing antiaromatic cyclobutadienoid. The synthesis was achieved through efficient palladium-catalyzed annulation of aryl bromides and oxanorbornenes, both of which are readily available building blocks, followed by aromatization under acidic conditions. These extended PCHs containing CBDs exhibit tunable degree of antiaromaticity and optoelectronic properties.

In the quest for synthetic materials that transduce mechanical stimulation to multifaceted signals and adapt to force, we have developed a unique class of polyladderenes, which undergo rapid force-triggered unzipping to metamorphosize into polyacetylene with > 100 conjugated olefins and uniform all *trans*-configuration. This design opens new avenues in developing smart materials that sense and adapt to mechanical force by transforming an array of their intrinsic properties and understanding details of mechanotransduction in polymers.

Date: December 18, 2017 (Monday)

Time: 2:30 p.m.

Venue: L3
Science Centre

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Contact Person:
Prof. Qian Miao

For favour of posting

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

Speaker: Professor Chen-Wei Liu
Department of Chemistry
National Dong Hwa University

Title: Dichalcogenolate-protected copper (silver) nanoclusters and their alloys

Date: December 19, 2017 (Tuesday)

Time: 10:30 a.m.

Venue: L3
Science Centre

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Contact Person:
Prof. Kin-Shing Chan

For favour of posting

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

Speaker: Prof. Lei Zhu
Department of Macromolecular Science and Engineering
Case Western Reserve University

Title: High Energy Density and Low Loss Dielectric Polymers for Electric Energy Storage

Date: December 20, 2017 (Wednesday)

Time: 2:30 p.m.

Venue: L3, Science Centre

< Abstract >

High dielectric constant polymers find numerous advanced electrical applications such as pulsed power, power conditioning, gate dielectrics for field-effect transistors, electrocaloric cooling, and electromechanical actuation. Unfortunately, it is generally observed that higher polarization or dielectric constant tends to cause significantly enhanced dielectric loss. It is therefore highly desired that the fundamental physics of all types of polarization and loss mechanisms be thoroughly understood for dielectric polymers. In this presentation, we intend to explore advantages and disadvantages for different types of polarization. Among a number of approaches, dipolar polarization is promising for high dielectric constant and low loss polymer dielectrics, if the dipolar relaxation peak can be pushed to above the gigahertz range. In particular, dipolar glass, paraelectric, and relaxor ferroelectric polymers will be discussed for the dipolar polarization approach. Finally, we will introduce our multilayer dielectric film technology utilizing the paraelectric properties of polar polymers such as poly(vinylidene fluoride) and its random copolymers.

Professor Lei Zhu received his B.S. degree in Materials Chemistry in 1993 and M.S. degree in Polymer Chemistry and Physics in 1996 from Fudan University. He received his Ph.D. degree in Polymer Science from University of Akron in 2000. After two-year post-doctoral experience at the Maurice Morton Institute, University of Akron, he joint Institute of Materials Science and Department of Chemical, Materials and Biomolecular Engineering at University of Connecticut, as an assistant professor. In 2007, he was promoted to associate professor with tenure. In 2009, he moved to Department of Macromolecular Science and Engineering at Case Western Reserve University as an Associate Professor. In 2013, he was promoted to full Professor. His research interests include high κ polymer and organic-inorganic hybrid nanomaterials for high energy density capacitor applications, development of artificial antibody as nanomedicines, and supramolecular self-assembly of discotic liquid crystals. He is recipient of NSF Career Award, 3M Non-tenured Faculty Award, DuPont Young Professor Award, and Rogers Teaching Excellence Award. He is author and co-author of 153 refereed journal publications and 5 book chapters. He delivered over 150 invited talks and 45 contributed presentations, and his total citation is 6600 times with an *h*-index of 46 (Google Scholar).

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Contact Person:
Prof. To Ngai

For favour of posting

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

Speaker: Prof. Guosong Chen
Department of Macromolecular Science
Fudan University

Title: Carbohydrate-based Macromolecular Self-assemblies and their Biological Functions

Date: December 21, 2017 (Thursday)

Time: 2:30 p.m.

Venue: L3, Science Centre

< Abstract >

Carbohydrates are the most abundant organic species in the world and also one of most important biological macromolecules with nucleic acids and proteins. The self-assembly of DNA and proteins make a significant contribution to our lives and they have been employed to make functional self-assembled materials. Compared to the development of DNA and proteins, our knowledge and manipulation to the self-assembly of carbohydrates as well as their functionality are quite limited. The major obstacle is the complicated chemical structure of oligosaccharides, i.e. perplexing glycoforms and microhetrogeneity on proteins, which make the research a problematic and long-term task. Under this circumstance, macromolecular self-assembly might provide an alternate insight to this problem. In this talk, I will present: 1) developement of precise protein array with regular shape at nm scale controlled by protein-carbohydrate interaction; 2) construction of polymeric vesicles mimicking glycocalyx, structure, self-assembly and immunological functions; 3) control of macromolecular self-assembly by chemical reactions related to sugars.

Prof. Guosong Chen was born 1979 in Tianjin, then studied chemistry at Nankai University, where she obtained her B.Sc. in 2001. In 2006 she received her Ph.D with the same university in supramolecular chemistry. After her postdoctoral studies in carbohydrate chemistry at Iowa State University, she moved to Fudan University in Dec. 2008, where she joined the research group of Prof. Ming Jiang in macromolecular self-assembly as a lecturer, working on the interface of macromolecular self-assembly and supramolecular chemistry. After she was promoted to associate professor in 2011, her research focus has been reoriented to carbohydrate-based macromolecular self-assembly and its biological functions. She then received Excellent Youth Foundation from NSFC in 2013 and was promoted to professor in 2014. As corresponding author, she published more 40 papers in *J. Am. Chem. Soc.*, *Nature Communications*, *Angew. Chem. Int. Ed.*, *Adv. Materials* and other journals. Since 2017, she was elected as Fellow of Royal Chemical Society (FRSC) and serves as an international board member for *Polymer Chemistry*, *Bioconjugate Chemistry*, *Polymer International* and etc.

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Contact Person:
Prof. To Ngai