

# 柳愛華教授生平

## Biography of Professor LAU Oi Wah



柳愛華教授一生致力在大學及高中推廣科學教育，於中文大學春風化雨三十五載。柳教授一九六八年加入崇基學院化學系任教。二零零三年自中文大學榮休。在職期間，積極參與大學教務以及書院服務，柳教授於一九九四至二零零三年期間擔任中文大學理學院院長達九年，八三至八六年以及九四至零三年出任香港中文大學校董，於一九八零年至二零零三年參與崇基學院院務委員會工作，八六至九五年代表院務委員會出任崇基學院校董。一九七七年至一九八五年出任崇基學院獎學金委員會主席，又於一九八七年至二零零三年出任崇基學院體育委員會主席。柳教授於零三年榮休後，仍繼續匡助崇基學院的發展，出任學院資深導師，輔助推廣校園健康教育。

出任大學理學院院長九年期間，在柳教授的領導下，理學院擔任前線科學家及普羅市民的橋樑，與大眾一同分享科研成果。柳教授亦明白到，必須培養年輕一輩學子對科學的熱情，以及將科學知識傳遞至各階層人士，拉近科學與香港市民的距離。

理學院全人非常認同柳教授在香港年輕人中推動科普教育的理念，所以當柳教授在二零零四年辭世後，理學院也肩負起延續這份跟社會大眾傳達科學知識的重任。自二零零五年起，每年香港中文大學理學院與柳愛華紀念基金都會舉行「柳愛華紀念科學講座」，以延續柳教授獻身於推廣高中科普教育的無私精神。

The late Professor LAU Oi Wah devoted herself to promoting science education in both university and high school, and left a legacy of 35 years of service to The Chinese University of Hong Kong. As a professor in the Department of Chemistry who also served as Dean of the Science Faculty from 1994 to 2003, Professor Lau recognized the importance of nurturing young minds of next generation and the necessity to bringing scientific knowledge and advancement to the public.

Professor Lau joined the Department of Chemistry of Chung Chi College in 1968, and retired from the Faculty of Science of The Chinese University of Hong Kong in 2003. Active in affairs at both the college and university levels, Professor Lau served as Member of the University Council (1983 – 1986, 1994 – 2003), Member of College Assembly of Fellows (1980 – 2003), Member of College Board of Trustees (1986 – 1995), Chairperson of College Scholarships, Awards and Financial-Aid Committee (1977 – 1985), and Chairperson of College Physical Education Committee (1987 – 2003). During the nine years as the Dean of Science, Professor Lau led the Faculty of Science in building bridges between scientific frontiers and the masses, showing how science is an inherent as well as an integral part of everyday life. Even after her retirement, Professor Lau continued to assist Chung Chi College in promoting campus health education.

After the passing of Professor Lau in 2004 at the age of 63, her former colleagues at the Faculty of Science wished to continue Professor Lau’s legacy in promoting science education to the young people of Hong Kong. First held in 2005, the annual Lau Oi Wah Memorial Science Lecture Series – jointly sponsored by the Faculty of Science and the Lau Oi Wah Memorial Fund – has been one of the ways the members of the Faculty of Science at The Chinese University of Hong Kong carry on Professor Lau’s dedication to igniting a passion for science among high school students.



香港中文大學理學院  
FACULTY OF SCIENCE  
THE CHINESE UNIVERSITY OF HONG KONG

# 第十四屆柳愛華紀念科學講座

## The 14<sup>th</sup> Lau Oi Wah Memorial Science Lecture Series

香港中文大學理學院及柳愛華紀念基金主辦

Organized by The CUHK Faculty of Science & The Lau Oi Wah Memorial Fund

23 . 3 . 2018

4:30 pm - 6:30 pm

香港中文大學康本國際學術園2號演講廳  
LT 2, Yasumoto International Academic Park (YIA), CUHK

鳴謝 Acknowledgements



# 程序表

## Programme Rundown

16:30

開幕禮  
Opening Ceremony

16:45

從電腦世界探索化學  
Exploring Chemistry on Computers

化學系 謝應龍 教授  
by Professor TSE Ying Lung Steve  
Department of Chemistry

小休  
Break

17:40

邁向無電阻之路  
The Path of Zero Resistance

物理系 吳瑞權 教授  
by Professor GOH Swee Kuan  
Department of Physics





# 從電腦世界探索化學

## Exploring Chemistry on Computers

**化學系 謝應龍 教授**  
Professor TSE Ying Lung Steve  
Department of Chemistry

### 摘要 Abstract

科學家自第二次世界大戰後開始利用電腦研究自然科學問題。從那時起，電腦就成為研究分子過程不可或缺的工具。過去幾十年來，電腦計算能力迅速提高，如今我們已能利用電腦準確地模擬各種材料。這些電腦“實驗”令我們能簡單而精準地控制實驗條件，並且能仔細研究其中的分子機制。這樣的精準度及分子解像度都是一般實驗難以實現的。在這次演講中，我將會以一些例子來說明實驗和電腦模擬如何互相影響及推動彼此的研究方向。我亦會展示實驗和電腦模擬如何合作提高我們對科學的認知。

Right after World War II, computers first became available to scientists to study physical problems. Since then, computers have become an invaluable tool for understanding molecular processes. Nowadays, thanks to the tremendous speed increase in computing power in the last few decades, we are able to simulate a variety of materials accurately. The advantages of carrying out these computer “experiments” are that we can easily and precisely control the experimental conditions and carefully study all the molecular details of the observed phenomena, whereas it may not be always possible to have such control and molecular resolutions in a real experiment. In this talk, I will discuss some examples for how experiment and simulation influenced and motivated the research directions of one another, and I will show how the joint efforts of experiment and simulation have advanced our understanding of the sciences.

### 講者簡介 Speaker Biography

謝應龍教授曾於美國史丹福大學研讀理論化學，並於2011年獲得博士學位。其後，他遠赴美國芝加哥大學，出任博士後研究員四年，期間在可再生能源和酸鹼系統領域上進行研究。謝教授於2015年回流香港，並加入香港中文大學，擔任化學系助理教授。現時他主要利用統計學和電腦模擬，對不同物理/化學系統進行研究。

Professor TSE Ying Lung received his PhD degree in theoretical chemistry at Stanford University in 2011. He then spent four years at University of Chicago from 2011 to 2015 to carry out postdoctoral research in the areas of renewable energy and acid-base systems. He returned to Hong Kong in 2015 to start working as an Assistant Professor in the Department of Chemistry at CUHK. His current research involves using statistics and computer simulation to study different physical /chemical systems.

# 理學院院長的話

## Message from the Dean of Science



Welcome to the 14th Lau Oi-Wah Memorial Science Lecture Series at The Chinese University of Hong Kong (CUHK). Commencing in 2005, this annual lecture series is organised in recognition of Professor Lau Oi-Wah’s contribution to promoting science education.

Having obtained a BSc degree from The University of Hong Kong, Professor Lau joined Chung Chi College of CUHK as an Assistant Lecturer in 1968, whilst still working on her PhD thesis. She became a Lecturer at CUHK upon the completion of her doctoral degree in inorganic chemistry in 1970. After having been awarded the Leverhulme Foundation Fellowship in 1971 by Imperial College, London and the Honorary Research Fellowship in 1978 by the University of Birmingham, Professor Lau became a Chartered Chemist and an elected Fellow of the Royal Society of Chemistry, U.K., in 1981. Following her success in the academic career in research, Professor Lau was promoted to Senior Lecturer in 1982; Reader in 1993; and was elected to the Deanship of the Faculty of Science for three successive terms, from 1994 until her retirement in 2003.

Professor Lau was a dedicated teacher and a caring research advisor, who always put her students’ learning and benefits first. During her academic career, she supervised 7 PhD students and about 30 M.Phil. students. To those who knew her well, she was undoubtedly a passionate educator with a warm personality. During her Deanship, she had successfully pushed for the establishment of many interdisciplinary teaching and research programmes, a philosophy of which continues to be a direction for curricula developments of the Faculty of Science. In addition to university teaching, Professor Lau had also initiated efforts to promote science education in local secondary schools.

After the passing of Professor Lau, her friends and students established the Lau Oi-Wah Memorial Fund in order to commemorate her commitment to education. Supported by the fund, the Lau Oi-Wah Memorial Science Lecture Series runs annually to promote public engagement in science. The Lecture Series continues to inspire young people to pursue further studies and careers in scientific fields. Professor Lau’s legacy has indeed lived on through the gift of learning as we all wish.

As aspiring scientists, I hope that you will be able to take home some fundamental concepts as well as some inspiration from this Lecture Series. By using your creativity, I look forward to all of you developing your innovative ideas into new technology for the advancement of our ever-changing society.

Henry N.C. Wong, Dean of Science

# 邁向無電阻之路

## The Path of Zero Resistance

**物理系 吳瑞權 教授**  
Professor GOH Swee Kuan  
Department of Physics

### 摘要 Abstract



Superconductor

當我們使用電熱水煲時，電阻發熱充當著非常重要的角色。但同樣地，電阻令我們在使用電纜傳送電能時浪費大量能量。在這個能源需求不斷增長的世界，徹底消除電阻對建設可持續發展社會有莫大益處。超導體這個能以無電阻狀態下導電的材料，可能是一個理想的解決方案。本人會深入淺出，介紹有關超導體的研究，包括最近超導體研究的發展和本人自身的研究課題。

Electrical resistance plays a central role when you use your electrical kettle to boil water. However, the same resistance contributes to an enormous loss in energy transport. In the world with an increasingly large energy demand, the total elimination of resistance would contribute positively to the building of a sustainable society. Superconductivity, the flow of the electrical current without any resistance, appears to be an ideal solution for the transfer of energy. I will give an informal and non-technical overview of superconductivity research. Recent developments, including selected topics from our own research, will also be presented.

### 講者簡介 Speaker Biography

吳瑞權教授現任香港中文大學物理系助理教授。吳教授於威靈頓維多利亞大學物理系本科畢業（榮譽），及後於劍橋大學獲得物理學博士學位。博士畢業後，他先後於劍橋大學三一學院及京都大學日本學術振興會獲發研究獎學金。吳教授的學術團隊主要研究強關聯電子系統在極端條件下之特性。

Professor GOH Swee Kuan is an Assistant Professor of Physics at The Chinese University of Hong Kong. He obtained his BSc (Hons) in Physics from Victoria University of Wellington and his PhD in Physics from University of Cambridge. After his PhD, he was awarded a research fellowship from Trinity College, Cambridge, followed by a Japan Society for the Promotion of Science fellowship at Kyoto University. His team studies the properties of strongly correlated electron systems under extreme conditions.