



# Science Faculty e-Newsletter

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## Discovery and Innovation: Experience of a Nobel Winner

Sweat, social networking, and serendipity were of high order leading to one of the most revolutionary discoveries in biology. Speaking at the CUHK campus on 29 January 2014, Nobel Prize in Chemistry 2008 Laureate Professor Martin CHALFIE brought a captivating tale of determination and patience

that resulted in the discovery of the Green Fluorescent Protein (GFP), and made possible the study of processes occurring in live cells.

Co-presented by the School of Life Sciences and Department of Chemistry, Professor Chalfie's talk attracted close

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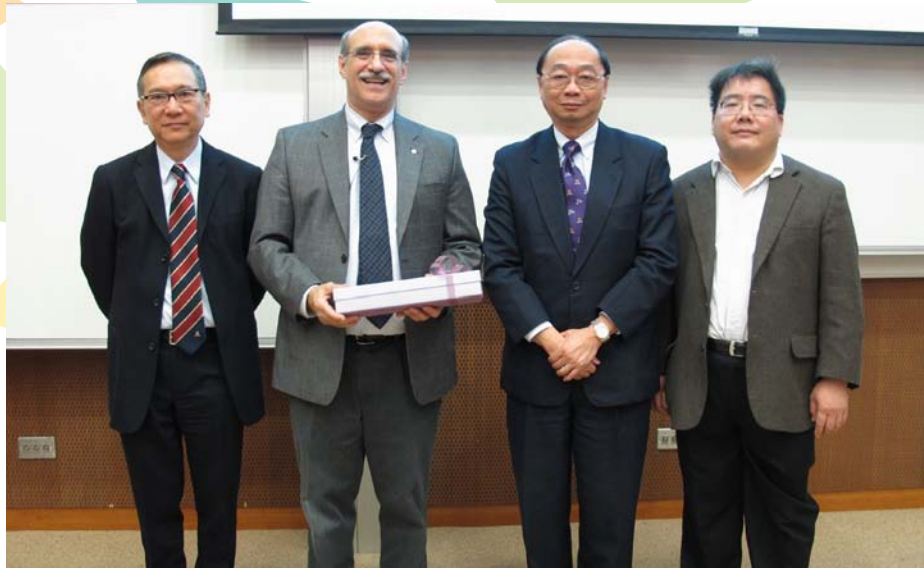
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Following the talk, Faculty Dean Professor Henry N.C. WONG (third left), Chemistry Department Chairman Professor Tony K.M. SHING (left), and Director of School of Life Sciences Professor Michael K. CHAN (right) presented Professor Chalfie with a souvenir.

to 200 participants, who eagerly listened to his sharing of how scientific progress is often made: through accidental discoveries, the willingness to ignore previous assumptions and take chances, and the combined efforts of many people. Moreover, the story of GFP also highlighted the importance of basic research on non-traditional organisms.

To make his case why fundamental research is important and deserves support and funding, Professor Chalfie shared with the audience the justification Dr. Robert R. WILSON made on the FermiLab Accelerator (*vis-a-vis* benefits for national defense):

“It has only to do with the respect with which we regard one another, the dignity of men, our love of culture. It has to do with whether we are good painters, good sculptors, great poets. I mean all the things we really venerate in our country and are patriotic about. It has nothing to do directly with defending the country except to make it worth defending.”



The talk was well-received, drawing close to 200 teachers, students, and members of the public.

The contributions of basic scientific research is oftentimes considered remote from everyday life, and irrelevant to the improving of life for humanity and the world. Yet, Professor Chalfie’s sharing made clear that research on even the most seemingly insignificant organisms may lead to profound changes to our society.



Students Spell Success at FameLab Hong Kong 2014

Scientific knowledge proved to be sensational at the Hong Kong Grand Finals of the British Council's FameLab Hong Kong 2014. Held on 15 March 2014 at the Hong Kong Science Museum, ten finalists, including four students from CUHK, battled to impress the judges and the audience with their engaging presentations.

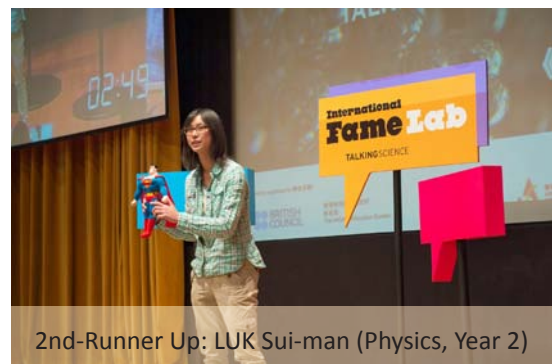
Contestants delivered a series of captivating talks, with topics ranging from gravity-assisted propulsion, facial feedback theory, to the science behind love. Among the four CUHK finalists, three received awards, including 1st Runner-up LO Lok-man (PhD, School of Biomedical Sciences, Faculty of Medicine), 2nd Runner-up LUK Sui-man (Year 2, Physics), and Video Favourite Award recipient WONG Siu-shing (Year 2, Biochemistry). CUHK took home the Best Institution Award 2014 for producing the most finalists among all local institutions.

Professor Henry N.C. WONG, Dean of Science, not only attended the Hong Kong Grand Finals to support the finalists, but he also received the Best Institution Award on behalf of CUHK.

The presentations made in the qualifying round and at the Hong Kong Grand Finals are now available for [viewing online](#).

FameLab is an international science communication competition and held for the first time in Hong Kong back in 2009 as part of the annual Science Alive programme of the British Council. The competition aims to encourage young scientists (20 to 35 years old) to inspire and excite public imagination with a vision of science in the 21<sup>st</sup> century.

(All photos used in this article were kindly provided by [British Council Hong Kong](#).)



2nd-Runner Up: LUK Sui-man (Physics, Year 2)



Video Favourite Award:  
WONG Siu-shing (Biochemistry, Year 2)



## Multiple Honours for Contributions to Plant Science

Professor ZHANG Jianhua, Professor of Plant Biology of the School of Life Sciences and Director of the State Key Laboratory of Agrobiotechnology, has recently received recognition from a number of organizations for his continued excellence in research in plant science. An alumnus of the Lancaster University, Professor Zhang has been awarded an Honorary Doctorate (Doctor of Science) from his *alma mater* for his great distinction in research in

fundamental plant science, especially in its application to agriculture in some of the driest places in the world.

On 10 January 2014, Professor Zhang was also the recipient of a State Natural Science Award (Second Class Award) at the ceremony held in the Great Hall of the People in Beijing, as the representative and second contributor

maintaining primary root elongation under water stress” supported by a “Major Research Plan” RMB\$2M grant from the National Science Foundation of China (NSFC). At the same time, Professor Zhang is leading a team based at Yangzhou University to conduct “Basic researches on the mechanisms and regulations of high water-use efficiency in crops”, with the generous

## One of the top five crop researchers who could CHANGE THE WORLD.

*Nature* 456, 563-568 (2008);

DOI: [10.1038/456563a](https://doi.org/10.1038/456563a)

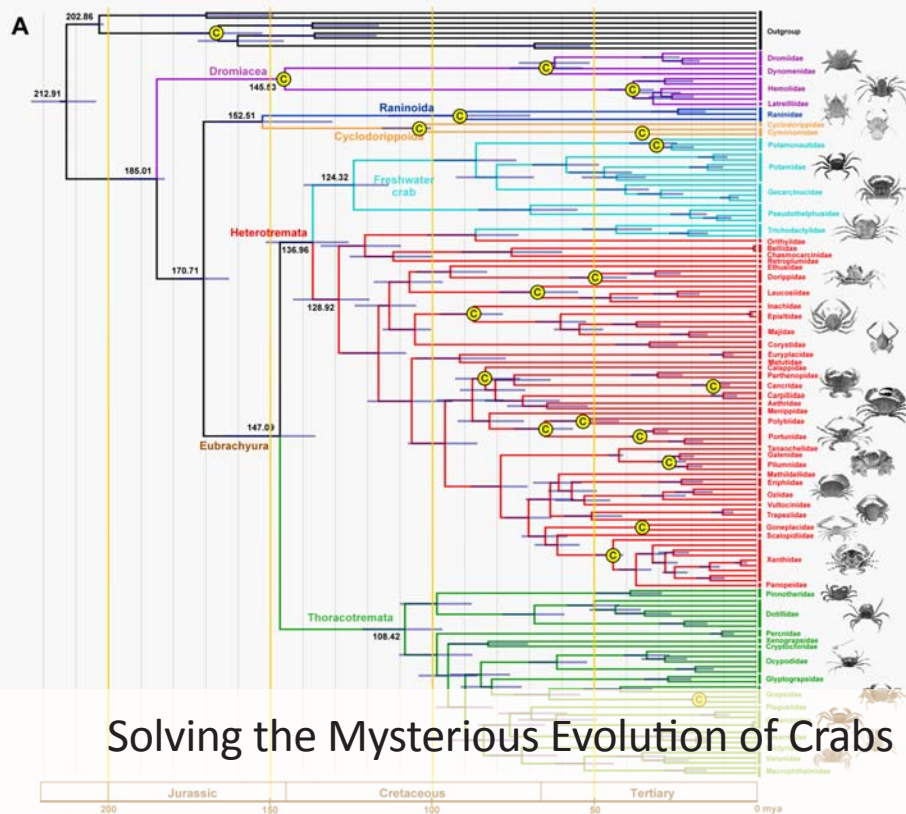


Professor Zhang accepted the State Natural Science Award (Second Class Award) on behalf of the research team in the Great Hall of the People in Beijing.

of the research team conducting research entitled “Soil water dynamics in the soil-plant system and its control mechanism in the Loess Plateau”. Keenly aware of the importance of collaboration and exchanges, Professor Zhang has not only been a staunch supporter and benefiter of the Hong Kong Scholar Program, he continues to push forward in his research by leading teams of scientists in two promising projects. Starting this year, Professor Zhang and his team at the CUHK Shenzhen Research Institute are undertaking research entitled “Network pathways and its mechanisms of IHR1 in integrating the ABA modulation for

support of about RMB\$6M from the National Basic Research Program of China (973 Program).

Professor Zhang has published more than 250 papers on his area of expertise. Heralded by *Nature* as “one of the five crop researchers who could change the world”, Professor Zhang continues in his relentless journey to bring change for the better for people living in some of the most arid regions of the world.



## Solving the Mysterious Evolution of Crabs

Recently, Professor CHU Ka-hou (School of Life Sciences) led a research team in publishing the most complete and extensive crab DNA and mitochondrial sequence dataset to date, helping trace the origins of most living crab families and superfamilies. The latest findings, published in the journal *Molecular Biology and Evolution*, refine many crab evolutionary issues, and will serve as an important and comprehensive resource for researchers to continue their investigation of the molecular basis of the various body forms, shapes and functions among the various species of crabs. These findings have also drawn attention of the scientific community, and were highlighted in two websites, namely [ScienceDaily](#) and [Press-News.org](#).

Through molecular methods, Brachyura phylogeny was reconstructed using six nuclear protein-coding genes and two mitochondrial rRNA genes from over 140 species of 58 families. Professor Chu and his collaborators have determined through phylogenetic analyses that traced the evolutionary origins and timeframe of diversification of various lineages and species of crabs. These and other findings of the study mark a milestone in the quest for understanding the evolution of crabs,

and provides a molecular basis to the analysis of the diversification of species of the Brachyura family since the late Cretaceous and early Tertiary (60-100 MYA), about the same time when dinosaurs roamed the Earth.

### Further Reading:

L.M. Tsang, C.D. Schubart, S.T. Ahyong, J.C.Y. Lai, E.Y.C. Au, T.Y. Chan, P.K.L. Ng, and K.H. Chu\*. "Evolutionary History of True Crabs (Crustacea: Decapoda: Brachyura) and the Origin of Freshwater Crabs" in *Molecular Biology and Evolution*, 2014; DOI: [10.1093/molbev/msu068](https://doi.org/10.1093/molbev/msu068).



## Science Centre Joins The Power of Words

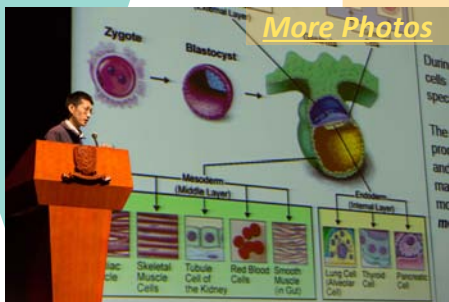
Since 2012, a stimulating wave of words has taken over our campus. The Power of Words, a reading and writing project organized by the Independent Learning Centre (ILC), Hong Kong Literature Research Centre, the Office of the Arts Administrator (OAA), and Topoem, strives to nurture continuing improvements in language abilities, and support the appreciation of literary arts.

The Faculty was glad to be invited by The Power of Words to have the Science Centre be a part of this wonderful initiative. A launch ceremony, co-organized by The Power of Words and the Science Society, was held on 24 March 2014 to introduce the project to our teachers and students. The Faculty was pleased to have one of the project organizers, Dr. Vivian CHAN of the ILC, with us that day. At the ceremony, the inaugural poems on the glass of the ground floor walls of the Charles Kao Building and Ma Lin Building were adorned respectively with "Sonnet-To Science" Edgar Allan Poe, and a quotation on the search for meaning from Ervin Laszlo's book *Evolution: the general theory* (1996).

The writings on the glass walls of the Science Centre lobbies will be updated periodically by The Power of Words team, giving our teachers, staff, students, and visitors some food for thought.

### Further Information:

[The Power of Words Blog](#)



## The 10<sup>th</sup> Lau Oi Wah Memorial Science Lecture Series

With a mission to bridge the gap between the general public and scientific frontiers, The Lau Oi Wah Memorial Science Lecture Series had successfully held its 10<sup>th</sup> instalment on Saturday, 22 March.

First held in 2005, the Lecture Series strives to deliver quality talks on popular science topics to local senior secondary students. From food safety, malaria, forensic science, mozart, to game theory, countless students have been mesmerized by the in-depth look into the wondrous world of science.

At the 10<sup>th</sup> Lecture Series, secondary students and teachers learned about five fascinating topics, including inverse problems in mathematics (by Professor Eric T.S. CHUNG of the Department of Mathematics), mechanism behind splashing (by Professor XU Lei of the Department of Physics), the workings of the immune system (by Professor KONG Siu-kai of the School of Life Sciences), statistical strategy and its applications to everyday life (by Dr Philip P.K. LEE of the Department of Statistics), and the role of oscillating chemical reaction in pattern formation in nature (by Professor ZHENG Bo of the Department of Chemistry).

Thanks to the intriguing presentations, many students left the event with greater interest in the sciences, and brought a fruitful close to the 10<sup>th</sup> Lecture Series.

## UPCOMING DATES AND EVENTS

### JS4601 Admission Interviews for 2014/15 Intake

Shortlisted applicants to JS4601 SCIENCE Programme have been invited to an interview to determine their suitability for admission and for them to find out more about the Programme. Details are as follows:

Date: 13 - 14 May 2014 (Tuesday and Wednesday)

Time: approximately 9:00a.m. - 4:00p.m.

Venue: Cheng Yu Tung Building, CUHK

### Science Faculty Research Day 2014

The Faculty has lined-up a number of heavyweight speakers to share with our teachers, students, and campus community their insights and experiences in winning major grants. The keynote speaker at this year's event will be Professor Gabriel N.C. LAU, AXA Professor of Geography and Resource Management, and Director of the Institute of Environment, Energy and Sustainability. Event details are as follows:

Date: 29 May 2014 (Thursday)

Time: 9:30a.m. - 12:30p.m.

Venue: L2, Science Centre, CUHK

For details, please refer to the event [website](#).

## Science Faculty e-Newsletter

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