

FROM THE EDITOR

Dear readers,

Nowadays, a lot of research opportunities are waiting for talented undergraduates. In this issue of *Science@HKU*, we report some of the research work done by our undergraduates and hear from them their views on our undergraduate research opportunity programme.

Yours sincerely,
Professor Hoi Fung CHAU
Chief Editor

HIGHLIGHTS

First Taste of Research Experience for Undergraduates

Undergraduate research experiences enrich students' lives in disparate aspects – discovering where their genuine interests lie, projecting the collaborative work of researchers as a team, and enabling them to tolerate and learn from failures along the way. From which, the next generation of young researchers are equipped for challenges ahead.

As a strong, research-oriented Faculty with top-rated scientists and modern research laboratories and facilities, the Faculty of Science is committed to providing our students the best education in science and be a nursery for future scientists. It has always been the Faculty's strategy to nurture undergraduate research. Since 2007, the Faculty has implemented the Overseas Research Fellowship (ORF) and the Summer Research Fellowship (SRF) Schemes, providing financial support to students to go to overseas laboratories or institutes or to do research in a supervisor's laboratory in the Faculty. To enhance students' learning experiences, the Faculty has increased both stipend and opportunities available for students this year. Together with the University Undergraduate Research Fellowship Programme (URFP), students are exposed to ample authentic learning opportunities of research internships, of which an extensive array of professional and personal benefits are revealed.



What Our Students Say



HASSAN Ayon Ahmed
Year 3 BSc student
(major in Molecular Biology
& Biotechnology)

ORF Participant at School of
Biological Sciences in summer,
2014

“SRF has provided me with the opportunity to get hands-on laboratory research experience for the first time.”

About my research project

My project involved using metagenomics to perform detailed analysis of microbial communities inside the Giant Panda (*Ailuropoda melanoleuca*) gut. I got an in-depth understanding of how microbial communities in the Giant Panda gut affect their health and digestion; and how their diet and environment in turn affects microbial communities.

Summer Research Fellowship (SRF) Scheme

My project title: A metagenomic approach to study the microbial ecology of the gut of Giant Panda (*Ailuropoda melanoleuca*)

Supervisor: Professor Frederick C C Leung, School of Biological Sciences, HKU

My experience SRF made me realize how different research work is compared to studying science in textbooks or preparing for examinations. In fact, it has also helped me appreciate and understand the subtle but profound differences between research work and carrying out experiments for laboratory courses. Rather than just learning lab techniques, students awarded the SRF need to work on a project of their own. I believe this helps them get a better understanding of what research work is like.

Upon completion of the project, students need to make a poster in order to present their research work. This requires drawing up conclusions on the project and their work in summer. I personally felt that the whole process of making the poster and presenting it made me think critically about the project and processes involved in it, allowing me to better reflect on the project itself. Also, I believe that presenting the poster to the faculty members and students has made me well prepared for such future events.

Through my research project, I have gained a better understanding of the thought processes scientists go through in professional life. This has thoroughly inspired me in research work and to find a career in it. Although there were hints of disappointments in times of failure, I believe overall I have learned a lot through the scheme. All in all, the SRF scheme has allowed me to have a productive summer full of learning, joy and experiences that I will certainly cherish in times to come.

Thus, for those who are interested in science and scientific research, SRF provides an excellent opportunity to experience research-based learning and is a scheme that will surely heighten one's interest in and appreciation towards science.



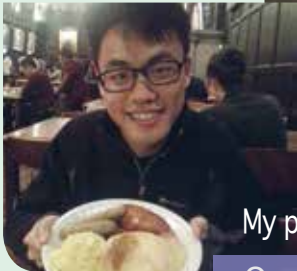
About SRF

Format	Students awarded with SRF are expected to work in the Faculty on a specific research project.
Time	At least 2 months during the summer.
Stipend	HK\$16,000 (from 2014-15 onwards)

Overseas Research Fellowship (ORF) Scheme

CHAN Ming Yan Brian
Year 3 BSc student
(double major in Physics and Astronomy)

ORF Participant at Atmospheric Sciences
Department, University of Illinois at
Urbana-Champaign in summer, 2014



My project title:

Quantifying diversity of aerosol populations across the US
using long-term data from the aerodyne aerosol mass spectrometer

Supervisor: Professor Nicole Riemer, University of Illinois at Urbana-Champaign

About my research project

Weather forecasting is an initial value problem. In short, once we key in the current situation of the atmosphere, the supercomputer can complete the calculations of time dependence according to physical equations. My research focuses on how the aerosols (small particles in air such as sulfates, nitrates and organic carbons) play a role in modeling.

My experience The weather report has been on my daily must-watch list amongst all the cartoons since I was a young boy in primary school. I was curious as to know how scientists make predictions. Thanks to the generous support of ORF Scheme, I was able to have a taste of this particular branch of science – Meteorology. During the summer break in 2014, I worked as a Research Assistant in the Atmospheric Sciences Department of University of Illinois at Urbana-Champaign (UIUC), exposed to frontier technology concerning atmospheric modeling. After the programme, I got the chance to present my results at the Poster Presentation held by the Faculty.

Nonetheless, life in US is not just studying and working, I have also made new friends during my brief stay. With the connections established by professors in Science Faculty, I soon befriended some PhD mentors. The World Cup season added a lot of spice in our academic life. Aside from the daily research, my friends and I often gathered in the University Community Hall to watch live broadcast. The hall was packed with students around the world, dressed up and cheering for their nation. These are some of the beautiful memories that I will treasure.

The trip is inspiring and enjoyable. I am truly grateful for having such a precious opportunity to work with leading scientists overseas. The lifelong friendship I have made and this unique experience of immersing myself in a foreign culture are something that I would hold dear for the rest of my life.

About ORF

Format	Students conducting research projects under the joint supervision of overseas academics and internal faculty members.
Time	At least 2 months during the summer.
Stipend	HK\$16,000, plus airfare on a reimbursement basis (from 2014-15 onwards).



- 1 Using the telescope inside campus.
- 2 Myself (right) at poster presentation.
- 3 Atmospheric science research is mostly working with computer.
- 4 My supervisor (right) and me in front of the Atmospheric Sciences building.

“I am truly grateful for having such a precious opportunity to work with leading scientists overseas. The lifelong friendship I have made and this unique experience of immersing myself in a foreign culture are something that I would hold dear for the rest of my life.”



“It has comprehensively prepared me in academic problem-solving, writing and presenting, and I was given the opportunity to play a crucial part in building the future of computing at the frontier of science.”

My project title:

Implementing quantum fingerprinting protocol with
error correction codes based on random toeplitz matrices

WANG Wenyuan Mike
Year 3 BSc student
(double major in Physics and Computer Science)
ORF Participant at University of Toronto
in summer, 2014

Mike was selected as the Best Presenter
at the Undergraduate Research Colloquium 2013-14

Supervisor: Professor Hoi Kwong Lo, University of Toronto

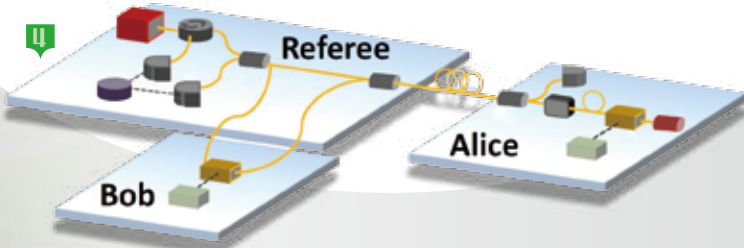
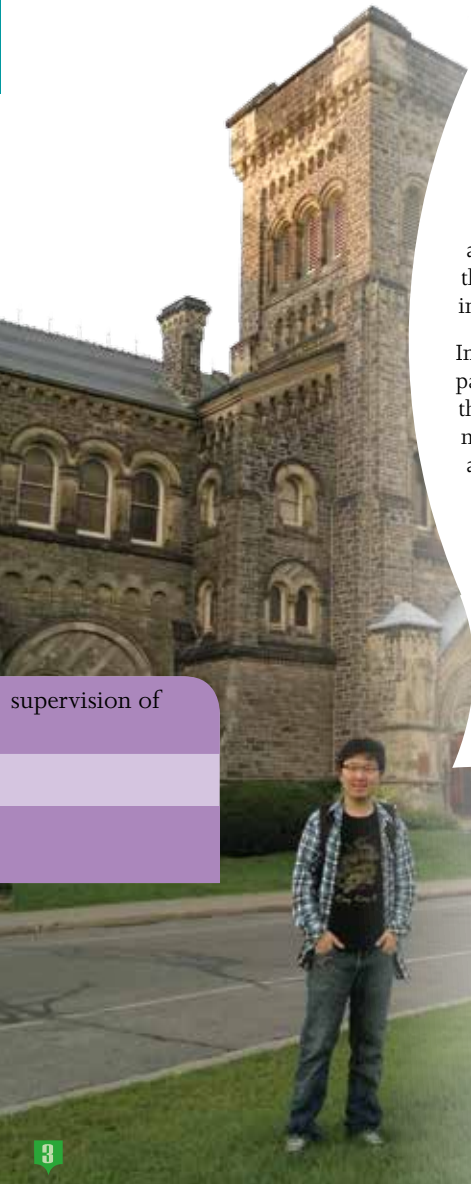
About my research project

Quantum computing has a great advantage over classical computing, and could potentially bring revolutionary changes to computers. However, up till now very few demonstrations could really show the quantum advantage, because experimental implementation is extremely difficult. In summer 2014, I am lucky to have the opportunity to work overseas and participated in a cutting edge project that aimed to bring about a real experimental demonstration of the quantum fingerprinting protocol, a quantum communication system that uses photons to transmit data. Also, I even had the opportunity to become coauthor of the subsequent paper from the research group on this successful implementation of quantum fingerprinting.

My experience Working in the research group, I came to know what it is really like to do research. Over three months, I had worked closely with three PhD students – we looked through various papers and books, built models, conducted computer simulation, and exchanged ideas enthusiastically. Eventually, we were able to improve the protocol performance to as much as 200% of the original one. Doing research is a very different experience from learning in classrooms, of which I realize the importance of independent thinking and maintenance of open-minded attitude towards disparate knowledge. It has greatly inspired me in my choice to continue pursuing PhD in quantum computing and my future career.

In this programme, I have gained invaluable experience in scientific writing and presentation. I wrote a paper for the first time, and learnt a lot about professional academic writing from the research group. In the summer, I had my first scientific presentation at a group meeting, demonstrating the project in front of many specialists in the field. Upon my return to HKU, I also participated in a poster sharing session. It was a completely different experience as audience came from different fields. I had to strike a balance when presenting technical findings in layman. I was in deep joy when explaining my project at the presentation of Research Colloquium, and was excited to find everyone was listening attentively. Such experience has taught me skills of scientific writing and presentation far more than that I have ever learnt in classrooms.

Overall, this overseas research experience is extremely rewarding and interesting. It has equipped me with problem-solving and academic skills. I was given the opportunity to play a crucial part in building the future of computing. Also, the experience to travel overseas and study in another world-class university is definitely amazing. I had greatly enjoyed the campus of University of Toronto and tourist spots like Niagara Falls and the Royal Ontario Museum. This is such an once-in-a-life-time experience that I will never forget!



- 1 Discussions with Juan Arrazola, a colleague and PhD student.
- 2 Computer simulations of the protocol.
- 3 Myself standing in front of the University College at the University of Toronto.
- 4 The Quantum Fingerprinting protocol (image courtesy: Feihu Xu, University of Toronto).

Undergraduate Research Fellowship Programme (URFP)

CHENG Tsz Fung Fergus

Year 3 BSc student (major in Biochemistry)

URFP Participant at Department of Biochemistry in summer, 2014

My project title:

Roles of BART microRNAs (miR-BART) in Epstein-Barr virus-induced epithelial transformation

The research team of Professor Dong-Yan Jin.

Supervisor: Professor Dong-Yan Jin, Department of Biochemistry, HKU

About my research project

Talking about cancers such as Nasopharyngeal Carcinoma (NPC), people would probably be horrified by this lethal disease that requires lengthy and painful medical treatment. As a biochemistry student, I am interested in studying how to prevent or treat carcinoma in such a way that many cancer patients can benefit and relieve their pain. The idea behind is to understand the mechanisms of factors or biomolecules affecting the normal cells.

My experience

As a participant of URFP and an awardee of the university research internship award, I would like to thank both HKU and the Faculty for giving me a treasurable chance to work in the virologist lab of Professor Dong-Yan Jin and be guided by an experienced tutor Dr Kit-San Yuen.

During my research internship in the summer, I was glad to learn how to use those advanced equipment in Biochemistry Department. My tutor taught me some crucial techniques to knock out the BART region of EBV and validate the generation of a mutant virus. I also had an invaluable experience in designing a feasible experiment and interpreting the results on my own. From which, I learnt the most important lesson – never give up easily, even if you experience repeated failures in the laboratory. Instead, we should go through each step carefully and examine what has gone wrong before we give another try. The project is indeed a useful training of my logical skill and is a definitely a lifetime benefit for me.

When it came to the poster presentation in October, I found it quite difficult to present the findings to the others, especially to audience without much scientific background. However, it did strengthen my presentation skills through this question-answering process.

All in all, URFP is actually a practical and professional programme that offers me golden opportunities to experience and understand the operations of a world-class laboratory. If there is a chance, I strongly recommend science undergraduates to join and enjoy this programme!

About URFP

Format	The URFP is a prestigious programme that offers opportunities for academically outstanding students to undertake research under the guidance and supervision of academic staff who have a strong research track record and experience in training research postgraduate students.
Time	Research internship: during summer; project or directed studies: during final year.
Stipend	Overseas research internships: Up to HK\$40,000 (covering economy return airfare and part of overseas accommodation and living costs for internship not less than 8 weeks on a full-time basis) Research internships in Hong Kong or the Mainland: HK\$15,000

生物化學系
Department of Biochemistry

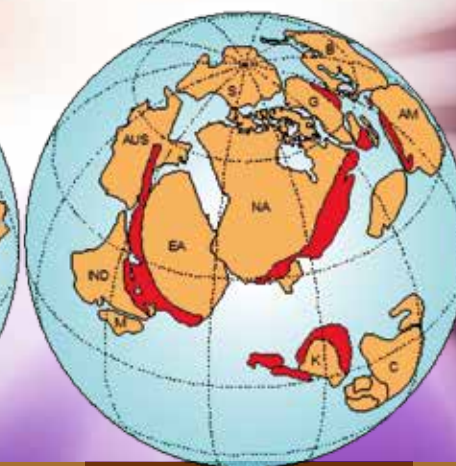


Fergus (left) with his tutor Dr Yuen.

Three supercontinents in Earth's history, of which the ~1.8 billion years old supercontinent was first proposed by Professor Guochun Zhao and his collaborators at the 15th Australian Geological Convention in 2000.



Columbia/Nuna ~1.8 billion years old



Rodinia ~1.0 billion years old



Pangea 250 million years old

A ~1.8 billion years old supercontinent

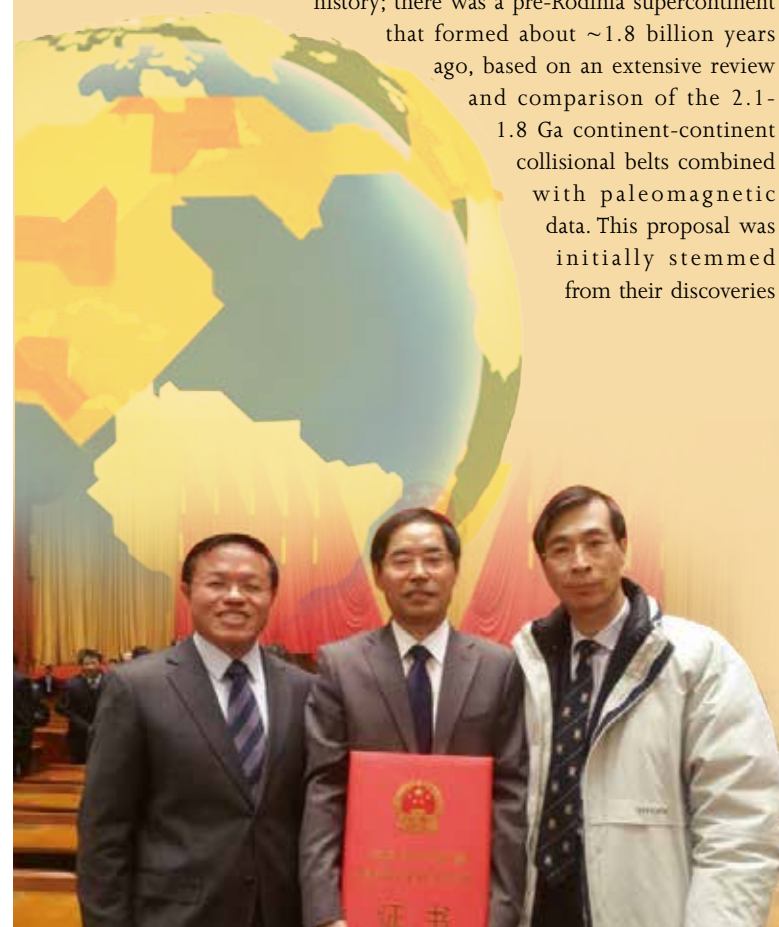
by Professor Guochun ZHAO, Department of Earth Sciences

A supercontinent is a large landmass encompassing almost all continental blocks during a period in Earth's history. Continental blocks came together to assemble a supercontinent by collision as a result of plate tectonics. Available data indicates that during the 4.57 billion-year long history, the Earth saw only a few supercontinents, of which the youngest one is Pangea that formed about ~250 million years (Ma) ago. Since the 1990s, geologists have confirmed that Pangea's components were drifted fragments of a ~1.0 billion years (Ga) old supercontinent, named "Rodinia", which was believed to be the first supercontinent in Earth's history. Later, however, Professor Guochun Zhao at HKU and his collaborators found that Rodinia was not the first supercontinent in Earth's history; there was a pre-Rodinia supercontinent that formed about ~1.8 billion years ago, based on an extensive review and comparison of the 2.1-1.8 Ga continent-continent collisional belts combined with paleomagnetic data. This proposal was initially stemmed from their discoveries

of two 1.95-1.85 Ga Himalaya-type continent-continent collisional belts in North China. Later, they found that similar-aged continent-continent collisional belts exist in all other cratonic blocks in the world. This led Professor Zhao and his colleagues propose that these collisional belts recorded global-scale collisional events that led to the assembly of a pre-Rodinia supercontinent. In 2002 and 2004, Professor Zhao and his collaborators presented comprehensive overviews on the assembly, outgrowth and breakup of the proposed pre-Rodinia supercontinent in two classic papers published in *Earth-Science Reviews*, a leading international journal in earth sciences. Later, this pre-Rodinia supercontinent was named "Columbia" or "Nuna", and its existence has been confirmed by more and more geological and paleomagnetic data. So far, this supercontinent has been widely accepted by earth scientists and their papers have been totally cited by others for more than 10,000 times, and the configuration of the Columbia (Nuna) supercontinent they proposed has been presented and introduced in American university textbooks *Global Tectonics*. (3rd Edition, Wiley Blackwell 2008)

Recently, Professors Zhao Guochun, together with Professors Min Sun (HKU) and Sanzhong Li (Ocean University of China) were awarded "2014 State Natural Science Award (Second Class Prize)" for their project entitled "Paleoproterozoic amalgamation of the North China Craton and the assembly of the Columbia supercontinent". Professor Zhao was recognized as the "Highly Cited Researcher" and "World's Most Influential Scientific Minds 2014" by Thomson Reuters. At present, he is the editor-in-chief of *Precambrian Research* (IF = 6.02) and the Chief Principal Investigator of NSFC Major Project "Reconstruction of East Asian continents in Pangea" (Funds: 20M RMB; Duration: 1/1/2012 - 31/12/2016). In 2014, Professor Zhao was elected to be the Fellow of Geological Society of American (GSA) and the President of the International Association for Gondwana Research (IAGR).

Professor Guochun Zhao (middle) and his collaborators Min Sun (right) and Sanzhong Li (left) received the 2014 State Natural Science Award (Second Class Prize).



The Hong Kong EIA System Needs to be Reviewed

by Dr Billy HAU, School of Biological Sciences
A member of the EIA Subcommittee of the Advisory Council on the Environment

Chinese White Dolphins *Sousa chinensis* are very likely to be affected by the various development projects in North Lantau waters.

Environmental impact assessment (EIA) is a systematic planning tool in public administration. It aims to assess the potential impacts of a proposed policy, plan, programme or project on the environment using the best scientific methods. Depending on the nature of the proposed action, an EIA may include assessments on pollution (air, water and noise); ecology; fisheries; landscape and archaeology. In recent years, some more advanced EIAs cover climate change and have included environmental risk assessments. The EIA process should be transparent to ensure wider public acceptance which is often achieved through proper public engagement in the process. The result of an EIA is one of the important considerations of the relevant government authority in approving or moving ahead with a proposed policy, plan, programme or project.

EIA has been evolved from the National Environmental Policy Act of the United States since 1969. Nowadays, most of the countries in the world have either a legal or administrative EIA system. Hong Kong started with an administrative EIA system in the late 1970s. After nearly two decades, the EIA Ordinance Cap. 499 came into effect in 1998. However, Hong Kong's EIA Ordinance is primarily project based i.e. it only governs development projects. For strategic EIA on policies, plans or programmes, it largely remains an administrative requirement of the Hong Kong SAR Government. Is our EIA system effective in making sure that our environment is not impacted upon by many of the developments in Hong Kong? I believe many environmentalists would say no. In over 16 years of the EIA Ordinance, 226 EIA reports have been prepared. Yet, only one EIA was rejected and a couple of others were withdrawn by the proponents. All of the other EIAs were approved with conditions.

Given the increasing number of judicial reviews on approved EIA reports by the public in recent years, e.g. Hong Kong-Zhuhai-Macau Bridge; the Artificial Beach at Lung Mei, Tai Po; the Integrated Waste Management Facility in Shek Kwu Chau, the civil society appears to be more dissatisfied with the EIA system now. The latest judicial review is on the EIA of the highly controversial Third Runway System of the Hong Kong International Airport. Whilst the lack of trust between the civil society and the Government may have a role to play, are there rooms for improvement in our EIA system with respect to public engagement in the EIA process? After over 15 years of operation, a comprehensive review of our EIA system seems needed.



Planned Three Runway System Layout

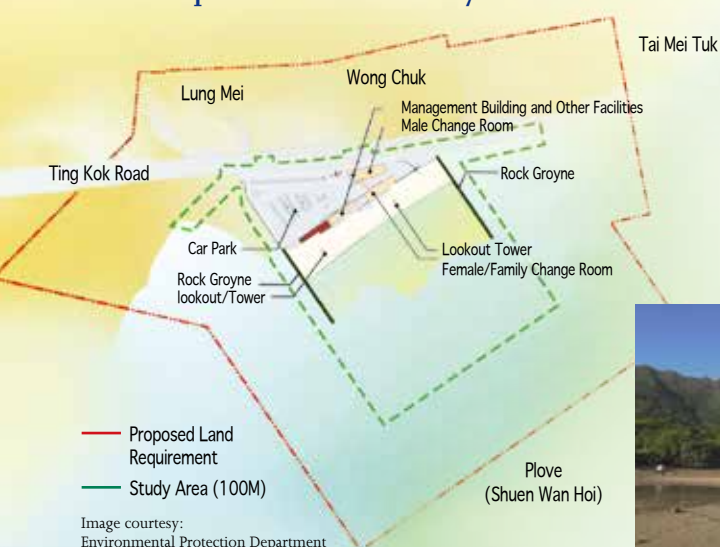
In most cases, the controversial issues are related to ecology. This is because pollution impact assessments have objective criteria for judgment but ecological impact assessment often has to depend on professional judgment. Sometimes, the best scientific methods are not deployed. For example, in the case of the Third Runway EIA, the extensive existing data on the Chinese White Dolphins were surprisingly not used in the ecological impact assessment. The over-reliance on the views of the overseas experts of the consultancy team has made the ecological impact assessment on Chinese White Dolphins unconvincing. On the other hand, the Third Runway EIA remains a project level study. Despite the fact that cumulative impact assessment was said to be included, it is unable to address issue such as the carrying capacity of the North Lantau Waters for the dolphins taking into account the numerous on-going and planned projects in the area, for example, Hong Kong-Zhuhai-Macau Bridge, Tuen Mun-Chek Lap Kok Link Road, and various coastal reclamation projects in North Lantau and Tuen Mun. A strategic EIA has long been needed ever since the planning stage of the Hong Kong-Zhuhai-Macau Bridge. Sadly, the Government has been refusing to do it due to the lack of a legal requirement on Strategic EIA.

In the case of the Artificial Beach at Lung Mei, the ecological impact assessment was indeed poorly done. Whilst the additional ecological assessment done after the public outcry has shown that Lung Mei has more or less similar ecological value with other coastal sites in Tolo Harbour, many members of the public are not convinced that the biodiversity of Lung Mei should be sacrificed to an unnecessary artificial beach. The debate has been unfortunately drawn into the EIA system. Yet, the "need" of a project is beyond the scope of an EIA. It should be addressed at the very beginning of a project life-cycle and before an EIA is conducted.

Most EIA systems around the world will be reviewed fairly regularly to cope with the rapid changing world. After 15 years of operation, the EIA Ordinance and system should be reviewed now. The current weaknesses in strategic EIA, public engagement and ecological impact assessment should be addressed.

An artificial beach is proposed to be built at Lung Mei, Tai Po

Proposed artificial beach layout



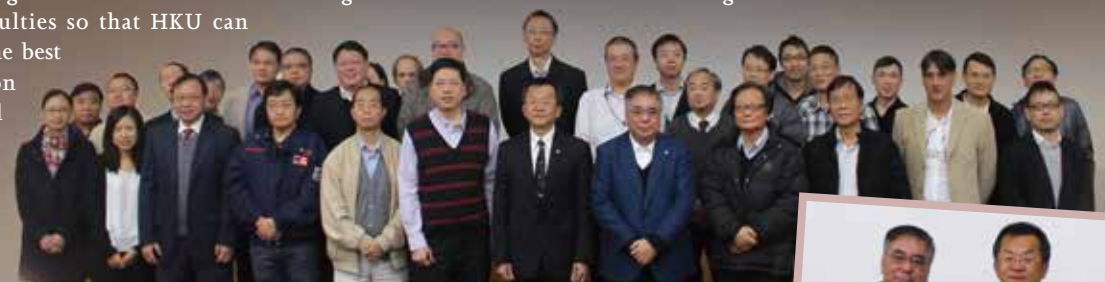
2014 UM and HKU Joint Workshop on Science and Technology Innovation

The Faculty of Science of The University of Hong Kong (HKU) and the Faculty of Science and Technology of the University of Macau (UM) jointly organized the 2014 UM and HKU Joint Workshop on Science and Technology Innovation on 5th December 2014 (Friday). At this momentous occasion, HKU and UM signed a Memorandum of Understanding (MoU) to further advance the two Universities' collaboration in teaching and research in areas of mutual interest.

More than 30 distinguished guests including Professor Sun Kwok, Dean of HKU Faculty of Science, Professor Philip Chen, Dean of UM Faculty of Science and Technology, and many other professoriate staff graced the occasion.

Professor Kwok hopes the signing of the MoU will further strengthen the exchange between the two Faculties so that HKU can continue to work closely with the best minds who share HKU's passion in scientific research and would complement HKU's efforts in teaching and research.

About the Workshop The Joint Workshop aimed to foster research collaboration between researchers in the two Science Faculties. With a view to facilitate the sharing of collaborative research ideas between our professoriate staff and counterpart colleagues at UM, there were time slots for interested researchers from both Universities to share their expertise and research interests, and a brainstorming session to pave the way for developing research proposals. The one-day Research Workshop provided our professoriate staff with a wonderful opportunity to not only extend their research collaboration but also open a new source of research funding.



Public Lecture of Distinguished Visiting Professor shed light on PM2.5 pollutants mitigation in Mainland China

Professor David Y H Pui, Distinguished Visiting Professor of the Faculty, gave an inspiring and insightful public lecture on "An Integrative Approach to the Study of PM2.5 Pollutants in China: Rationale, Instrumentation, Effects, Sources, and Mitigation by Filtration" on October 20, 2014, which was well-received by academics, researchers from industries, environmental specialists and general public.

In China, pollution is the price paid for the rapid economic development. There is growing concern about air pollution by PM2.5 pollutants which mainly come from coal burning and vehicle emissions. The fine particles of less than 2.5 micrometers in diameter can lodge deeply into the lungs and cause many heart and respiratory diseases. How to mitigate the PM2.5 pollutants effectively in China poses a great challenge to the government, industries and scientists.

In this lecture, Professor Pui proposed a disruptive innovation of Solar-Assisted Large-Scale Cleaning System (SALSCS) to filter the PM2.5 pollutants and to supply clean air. He elaborated the working principles of SALSCS and presented many brand new numerical studies about the SALSCS, such as design and location of the system. The proposition of the SALSCS changed the conceptual thinking how to fix PM2.5 pollutants in future studies.

We thank Professor Pui for his intriguing and terrific talk.

Brainteaser Prize: \$50 book coupon Deadline: June 30, 2015

It is necessary for chemists to use a variety of glasswares to conduct different kinds of experiments. Even laymen can recognize some commonly used glasswares such as beaker, test tube, and conical flask.

However, there are many other specially designed glasswares that are intended to special experiment. Can you name the glassware shown on the left? What is the use of this piece of glassware and how does it work?



Please email your answer together with your name and school (for students), to scinews@hku.hk. **FIVE** winners will be drawn randomly from the contestants who give the correct answer.

Question of last issue In your opinion, what would be the most amazing or unexpected thing you would experience if you were to live in an hypothetical world whose speed of light were just 3 m/s? A book coupon will be awarded to each of the five contestants with most creative and original answers. Selected answers will be published in the next issue of the Newsletter.

Answer In addition to all kinds of weird things in special relativity such as time dilation and length contraction, the fact that no one could move faster than 3 m/s in this hypothetical world alone leads to a lot of "surprises". For instance, it would take the most determined couple, one in Hong Kong and the other in the USA, to maintain their long distance relation for it would take about two months for a loving voice of "I miss you" to be heard over the phone and another two months for the "I miss you, too" response to be sent back. Actually, all long distance telephone companies should go bankrupt as a result.

Departments

HKU ranks high in science disciplines in U.S. News Subject Rankings of Best Global Universities.

According to U.S. News & World Report 2014, HKU ranks high in many science subjects in the "Best Global Universities Rankings" of which HKU Mathematics and Statistics rank the 9th in the "Best Global Universities Rankings for Mathematics".

Rankings of HKU in science disciplines:

Biology and Biochemistry: 77th Geoscience: 24th
 Chemistry: 62nd Material Science: 36th
 Environment/Ecology: 97th Mathematics and Statistics: 9th

HKU Faculty of Science has built up strong reputation for excellence in science education and research, and has developed itself into a world-class science school. The good news brings immense encouragement to us and drives us to continue to strive for the highest qualities in education and research.

Teachers

External Awards & Achievements

Professors Guochun ZHAO and Min SUN from Department of Earth Sciences, received the **2014 State Natural Science Award (Second Class Prize)** for research project of their team entitled "Paleoproterozoic Amalgamation of the North China Craton and the Assembly of the Columbia Supercontinent".



Professor Guanhua CHEN, Head of Chemistry, was recently elected as **Fellow of the American Physical Society (APS)** for his singular contributions in the development of quantum mechanical simulation methods for complex electronic systems, including O(N) methods for excited states and the multiscale QM/EM method for emerging electronics. Election to Fellowship in the APS is limited to no more than one half of one percent of the membership.



Faculty Awards

Dr Eddy K LAM, Department of Statistics & Actuarial Science, received the **Faculty of Science Award for Teaching Excellence 2013-14**, for his outstanding teaching performance and the continuous efforts he has put in arousing students' learning interests.



Dr Edmund T S LI, School of Biological Sciences, received the **Faculty Award for Service Contribution 2013-14**, for his contributions in service, departmental administration, and outreach activities in the Faculty.



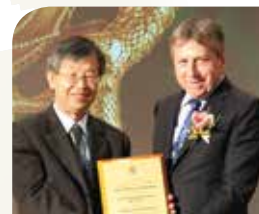
Others

Ms Lillian NG, Department of Earth Sciences, received the **Faculty Award of Outstanding Non-academic Staff 2013-14**, for her excellent performance among non-academic staff.



University Awards

Professor Hailiang YANG, Department of Statistics & Actuarial Science, was granted the **University Outstanding Researcher Award 2013-14**, of which the highly-coveted award is made to researchers of distinction and of international merit.



Dr Xuechen LI, Department of Chemistry, received the **University Outstanding Young Researcher Award 2013-14** for his involvement in high-impact applied research work.

Professor Xiaodong CUI and Dr Wang YAO, Department of Physics, received the **University Research Output Prize (Faculty of Science) 2013-14** for their research published in a journal entitled "Magnetoelectric effects and valley-controlled spin quantum gates in transition metal dichalcogenide bilayers" in *Nature Communications*, Volume 4, article no.2053, June 2013. Zhirui GONG, Gui-Bin LIU, Hongyi YU, Di XIAO and Xiaodong XU are the co-authors of the research paper.

Dr Benny NG and his team members Dr William CHEUNG, Dr Chi-wang CHAN, Dr Rachel LUI and Dr Jessica LEUNG received the **Faculty Knowledge Exchange Award 2014** for their project 'Science and Art Crossover Project -Visualizing Science via Creative Lens & Interactive Art'.



Students

Mr Jack Chi Ho IP, an MPhil student working on ecotoxicology and environmental genomics under the supervision of Professor Kenneth Leung in School of Biological Sciences, had won **The Outstanding Oral Presentation Award** at the 11th International Symposium on Persistent Toxic Substances (ISPTS) which was held in Hong Kong during October 27-30, 2014. The title of Jack Ip's presentation is "Establishing a Platform of Environmental Omics for the Green-lipped Mussel *Perna viridis*".



Dr CHEUNG Pak Leong, Department of Mathematics, received the **Faculty Excellent Teaching Assistant Award 2013-14**, for his contributions in outstanding performance in providing teaching support and interaction with students.



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