Welcome Message
by Professor Xu Guo Qin, Head of Chemistry

My heartiest congratulations to Prof Andy Hor for winning the department Outstanding Chemist Award 2010, Assoc. Prof Lu Yixin for the Young Chemist Award 2010, Assoc. Prof KP Loh for winning the inaugural SMF-NUS Research Horizons Award, Asst Prof Wu Jishan for winning the Young Scientist Award (YSA) 2010, Assoc. Prof Ryan Phillip Anthony Bettens and Assoc Prof Lai Yee Hing for winning the Faculty Teaching Excellence Award AY09/10, Ms Ang Hwee Hiock, Ms Han Yanhui, Ms Lew Huey Lee, Ms Emaiza Binte Mohd Arif, Ms Juliana Binte Mohamed, Ms Ong Bee Hoon, Suriawati Bte Sa'ad and Ms Wong Suk Tak, Carrie for winning the Outstanding Service Award 2010.

Our undergraduates and graduates have also continued to impress us with their achievements and abilities. I am particularly delighted to report that graduate student Wang Yan (student of Emeritus Prof Goh Suat Hong) won the WORLD FUTURE FOUNDATION PHD PRIZE in environmental and sustainability research and undergraduate Lim Cheng Xiang (student of A/P Loh Kian Ping) won the Outstanding Undergraduate Researcher Prize for AY2009/10. Besides excellence in their studies, our graduate students were also recognized for their passion in educating our undergraduates. Congratulations to Lin Xijie, Ong Wei Qiang and Wong Lingkai for winning the Teaching Assistant (part-time) award AY09/10. Students’ achievements are important to all of us as we are proud to share their joy and pride. This makes all of our alumni important and we hope you will see this latest issue of the NUS ChemConnections as a vital link between members of a very special community. Enjoy!
A PhD should be pursued at the time when you don’t quite need it. When you do really need one, it is definitely not going to just drop from the sky. For me it is the learning journey that will be interesting and beneficial. The qualification is just a documented proof that a certain level of knowledge is achieved. Certainly, I had already a load-full of surprise and admiration from people around me at work and at study --- “are you serious, PhD, part-time?!” Obviously having too little to do or what?!“ I am not a strong advocate of doing a PhD part-time. Indeed, the fullest and the best experience will be a full-time one, no doubt about it.

When I looked back at my academic experience, I had yet to pursue a full-time postgraduate study although I yearned much for one since my BSc days. When I graduated with a BSc without Hons in 1990, I knew my hopes for full-time graduate study were completely dashed. So, I developed myself in the specialty chemicals industry while keeping tabs on alternative academic opportunities. While completing my MSc coursework in 2009, I was already contemplating studying for a PhD. Also, I had a very encouraging, patient and tolerant supervisor Prof Sam Li whom I worked with in the CMS100 Project module (Extraction, Processing and Analysis of Rubber Seed Oil) and CM4201 Independent study module (Quartz Crystal Microbalance for Toxin Detection). I am really thankful to him for guiding me in arriving at my final decision, then accepting me as his part-time student, tolerating my perpetual absence or lateness in group meetings. Taking on graduate studies after a 20-year ”band-gap” is no easy feat, you can imagine the amount of activation energy to cross that barrier! I am happy to share that I achieved a CAP of more than 4 in my part-time MSc coursework program.

Interestingly, my Chemistry B (now known as Applied Chemistry) final year project was ”Quantitation of Ethyl Acetate in Pineapple Juice by Headspace Gas Chromatography” with Prof Wong Ming Keong. So, I started in the analytical field unknowingly. Currently, I am working on water remediation with biosorbents. From juices to seeds and oil to water… more band-gaps to cross?

The journey is tough but not impossible. It is just a less known path taken by very few. A PhD is anyway meant to be unique. We need to do something different to graduate, so I thought there should be no harm taking the less treaded path. Moreover, I find myself enjoying writing very much, so I thought writing and presenting about my learning outcome in a field related to my job in regulatory matters as well as my interests will be a truly great learning experience for me. Imagining that my thesis being born some four to five years from now, it is really sweet success. I am looking forward to a fruitful, enriching PhD experience that could eventually benefit those less fortunate. Also, one that will help me to remain young!

By Ho May Quan, BSc 1990, MSc (2010) Chemistry Alumnus
Currently International Trade Compliance Specialist with Huntsman (Asia Pacific)
During my honours year, I was involved in a research project to develop and optimize analytical methods based on capillary electrophoresis for the analysis of herbicides listed by the United States Environmental Protection Agency (US-EPA). Though it was a long and mundane journey, the fruitfulness that accompanied it was all worthwhile! I was eventually awarded with the Lijen Industrial Development Medal in Commencement 2005 for outstanding achievement in the Applied Chemistry Research Project.

Upon graduation in 2005, I found my first job in Data Storage Institute (DSI) as a Research Engineer, providing failure analysis services and consultancy to external hard disk industrial customers and supporting in-house research project by providing surface chemical and material characterization tests for internal research staff. I was finally a true Analytical Chemist and Failure Analyst! I was happy with what I was doing. It is not the amount of money that I can make but whether I am living my dreams. In 2006, the NUS Department of Chemistry started a new MSc coursework program. Seeing this as a good opportunity to further my studies while working at the same time, I decided to pursue this degree in 2007.

Attending the part time master course had been one of the most fulfilling years of my education life. It is not just about receiving the prestigious Lim Chin Kuan book prize in Commencement 2009 for my excellent academic performance in the Master course, but the learning process and the experience gained from the course. Many would think that it is tedious and hard work to juggle between work and studies at the same time. However, I believe with good time management, determination and consistent revision, everyone would be able to do well in both areas. I was also delighted that that the course had been well-structured, with the latest chemical development and technologies being presented in the lectures. And also, with the assistance from my helpful classmates, I was able to do well in my final semester. I was busy with my wedding preparation and I can still remember the wedding dinner was just two weeks away from my final paper! I felt so anxious and excited at that time!

I have since moved on to my second career as a Forensic Scientist in the Forensic Chemistry and Physics Laboratory, Health Science Authority (HSA) in 2009. The work of a Forensic Scientist requires full concentration, patience, logical and systematic interpretation and there is effectively no room for error. However, the demanding nature of the job makes it challenging and fulfilling. The studies and training I have received from NUS Department of Chemistry as well as from my past career provided me with the confidence to handle my new job well.

Throughout my studies at NUS and my career at DSI and HSA, I have been inspired by so many, from fellow classmates to lecturers to the professors and colleagues. While we should celebrate for what we have achieved today, I hope we can look forward to how we can inspire others too, like how we have all benefitted during our time at NUS. To all alumni, I hope you have enjoyed your days at NUS as much as I did!
I graduated from NUS Department of Chemistry in 2002 and that was the period when Singapore was in a financial recession due to the worldwide financial crisis. Although I could proceed to Honours, I chose not to in order to lighten my family burden.

I started work directly after getting my BSc in a commercial laboratory to gain some experience in working life. Despite being packed daily with a busy schedule my desire to learn was not dampened, I continued reading on topics like petroleum analysis, analytical chemistry, and quality assurance techniques during night shift. In 2006, I came across the NUS Department of Chemistry website on MSc by Coursework programme for those without honours degrees. I felt that I should carry on my quest for more knowledge and decided to attend the course briefing.

After the course briefing, I made up my mind to pursue a Master in Chemistry although I knew it would be a very long and laborious journey. Working during the day as a chemist in a commercial laboratory and spending 2-4 hours per day in school going for lectures was physically and mentally taxing. Fortunately with the help from both my employer and school, my life was made easier. My employer allowed me flexible working hours, by coming in slightly earlier, working from home and having unpaid leave. This actually helped me a lot, especially when I was taking level 4000 modules and working on my final project. The lecturer had also helped by allowing small snacks during lessons, as I had to skip dinner to attend the lesson on time. I also made use of online learning IVLE to participate in discussion with other coursemates and lecturers.

While doing my MSc at NUS, I was an active volunteer with Singapore Red Cross Society. I helped out in support work for international disasters (e.g. China earthquake, Myanmar cyclone, etc.) by manning phone calls, collecting funds and processing donations from the public. I also volunteered as a first aider in the Asian games, providing first aid coverage during the games.

After graduating from the MSc course, I returned to work in the commercial laboratory which supported me during my study, as I always believe in returning a received favour. I was given heavier responsibilities such as, guiding junior chemists in daily routine work, looking after the technical aspects of the laboratory and being appointed as approved signatory for laboratory reports issuance.

In November 2010, I moved on to teach in Singapore Polytechnic, which I had graduated from in 1996. I love this job as I get a chance to impart my knowledge that was acquired at university and industry to younger generations of students. Teaching is part of my learning process too as teaching nowadays is not simply applying the general principles of teaching learnt in textbook but adjusting context and style according to student feedback. Therefore by being a lecturer in the polytechnic, I am able to continue my learning process to be a better teacher.

I hereby wish to use this quote from Henry Ford to motivate all who read this article to keep learning.

"Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young."
Singapore won 2 Gold & 2 Silver Medals at the 42nd IChO in Tokyo, Japan

By Zhang Sheng, Instructor, Department of Chemistry

The International Chemistry Olympiad (IChO) is one component of the International Science Olympiads. It is an annual academic competition for high school students, based on both theory and practical chemistry competition. It was first held in Czechoslovakia in 1968. Singapore has been a member of the IChO since 1988.

In the IChO, each country sends up to four high school students, usually selected by their performance at national-level events and who go through different forms of chemistry educational training. In Singapore, this national-level event is the Singapore Chemistry Olympiad (SChO). The SChO is usually held in November and December of each year and consists of both theory and practical questions, following the IChO standard. The SChO 2009 was jointly organized by the Department of Chemistry, NUS; the Natural Science and Science Education Academic Group, National Institute of Education; the Singapore National Institute of Chemistry and, and the Ministry of Education. More than 300 students from 24 JC/high schools participated.

Four top students were selected after several rounds of training. These students represented Singapore at the 42nd IChO held in Tokyo, Japan in July, 2010. The students performed well in the competition and won two gold and two silver medals. More importantly, they had the opportunity to interact with students from other countries on chemistry and other interesting topics. The IChO provides a good opportunity for future chemists to start building valuable friendships and networks.
Grussi! (typical “hi/good morning” in Swiss-German language)

EURIP – The European Immersion Program 2010 (or known as EURIP V) was conducted from 29 May to 17 June 2010. During the 3 weeks visit to Europe, 30 undergraduate students and 2 mentors from Department of Chemistry visited 5 major universities in Switzerland (University of Basel, ETH Zurich, University of Zurich, EPF Lausanne and University of Bern) and 1 university in France (CPE Lyon). In addition, our group visited 4 research institutes or research centers (Paul Scherer Institute, CERN - European Organization for Nuclear Research in Geneva, Center for High Field NMR Lyon, Research Institute of Catalysis and Environment - IRCE Lyon) and also 2 Swiss chemical industries, Syngenta in Stein and Lonza in Visp.

During the visit, various activities were conducted, from mini-symposium, lectures, laboratory and research facilities visits to demonstrations. The highlight of our visits was perhaps our visit to CERN, one of the world’s largest and most respected centre for scientific research. Their main research area is on fundamental physics, finding out what the Universe is made of and how it works. At CERN, the world’s largest and most complex scientific instruments are used to study the basic constituents of matter – the fundamental particles. Secondly, at EPFL we witnessed an impressive demonstration on how the solar cell is fabricated and how it is used. The research was pioneered by Prof. Graetzel, Director of the Laboratory of Photonics and Interfaces at EPFL, who won the 2010 Millennium Technology Prize (800K Euro) for his research on solar cells.

Overall, the EURIP trip has provided a perspective to our chemistry students on how chemistry interlinks academia and industry. Although the time frame of the visit was relatively short, we hope that the program was enriching and enjoyable, and provided the hope for students to be more creative, motivated and open-minded.
Chemistry Year 1 De-Stress BBQ
By Emelyn Tan, Lecturer, Department of Chemistry

To celebrate the completion of their first semester at NUS, the Chemical Sciences Society (CSS) organized a BBQ at East Coast Park on 10 December for all Chemistry Year 1 students. CSS decided on a "de-stress" theme to allow students to unwind and relax after a semester of hard work. In addition, this event presented an opportunity for the students to meet and interact with the staff and professors from the Chemistry Department. It was a day of fun and laughter to help students relax and recharge for the upcoming semester 2. Everyone enjoyed the quality time spent at the BBQ and looked forward to having more of such activities in the future.
Chemistry Family Day at the Zoo

By Lew Huey Lee, Laboratory Technologist, Department of Chemistry

We held our inaugural Chemistry Family Day at the Zoo, on 20 March 2010. Although it was a rainy day, our spirits were not dampened. Staff and family members formed groups for the treasure hunt. The groups were given a list of questions and photos had to be taken as proof.

During lunch, we had our prize presentation and our annual departmental award ceremony - "Best Service Awards” and “Health is Wealth Awards”. The winners for the “Best Service Awards” for administrative staff were Emaiza Binte Mohd Arif, Suriawati Bte Sa’Ad, Tan Khai Seng, Wong Chee Ping, Sim Hang Whatt, Dominic Koh Kim Wee and Lee Chooi Lan. Winners for the “Health is Wealth Award” were Ang Hwee Hock, Agnes, Han Yanhui, Jiang Xiaohui, Juliana Binte Mohamed, Liu Qiping, Abdul Rahaman Bin Mohd Noor, Tan Lay San, Tan Beng Hong, Patricia, Tan Khai Seng, Tang Chui Ngoh, Wong Chee Ping, Wong Lai Kwai and Yeo Boon Hee.

Congratulations to all winners!
Team Building cum Retreat at Sentosa!

By Lew Huey Lee, Laboratory Technologist, Department of Chemistry, NUS

Many of you may have the impression that our staff members are only interested in Chemistry related activities. On 27 May 2010, we had our team building cum departmental retreat at Sentosa. The day started with ice-breaker games with our facilitators to start the day. Then we were split into 3 smaller groups to go through more interesting games like the Mohawk Walk and Whale Watch.

All of us had to walk on a tight rope and go through not one, but two L-shaped tight ropes for the Mohawk walk. For the Whale watch, all 13-15 of us had to balance on a huge see-saw.

After lunch, the challenge came! We had to build our own raft and row from Palawan Beach to the Southernmost Point of Continental Asia, twice! The non-rafters were tasked to solve a puzzle.

Re-bonding of ties and camaraderie are formed between all the staff members. Everyone saw the fun-loving and adventurous side of one another.

Till the next RETREAT!

A Little Dream Coming True

By Tan Khai Seng, Scientific Officer, Department of Chemistry, NUS

As part of both institutions’ intention to promote staff bonding and collaborations, the department held an inaugural staff games with IMRE, starting with one of the most popular games, Soccer. Facing a younger team of researchers from IMRE was our team of professors, staffs and the researchers captained by Prof Hardy Chan. Despite losing 3-0 to IMRE, everyone had a great time at the games and look forward to more in the future.
Department Hosts International Symposium

By Lee Hian Kee, Professor, Department of Chemistry

The Department organized and hosted the highly successful 1st International Collaborative and Cooperative Chemistry Symposium (ICCCS-1) from 15-17 November, 2010 on campus.

A little more than eight years ago, in March 2002, the Department of Chemistry, NUS, under the headship of Professor Andy Hor, initiated the first Singapore-China Collaborative and Cooperative Chemistry Symposium series, to engage and establish ties with Chinese universities, to promote research collaboration, and faculty and student exchange. This was followed by the establishment of similar symposium series with Indian, Australian and South Korean institutions with the same objectives.

In 2010, the Department felt it was time to consolidate these separate bilateral series, and a proposal was then put forward to several universities in the aforementioned countries to hold an annual symposium encompassing more universities, rather than just two universities at a time, with rotating hosts.

To cut a long story short, the interest and enthusiasm that greeted this proposal led to ICCCS-1, with NUS-Chemistry suggesting that it be the first host.

The participating founding universities of this expanded symposium series include the University of Queensland, Zhejiang University, Peking University, the University of Hyderabad, the Indian Institute of Technology-Kanpur, Kyoto University, Seoul National University and NUS. We also had participants from "guest" universities, Tsinghua University, Ritsumeikan University and the King Abdullah University of Science and Technology, Saudi Arabia, and the Institute of Materials Science and Engineering (IMRE).

The theme for the inaugural Symposium was “Frontiers in Molecular Design and Synthesis.” More than 40 internationally renowned speakers from the participating and guest universities, and institutions gave lectures at the event. Professor Andrew Wee, Dean of the NUS Faculty of Science was the guest-of-honour at the opening.

NUS-Chemistry intends for this to be an exciting and sustainable annual series that brings together some of the best chemists in Asia and Oceania to discuss their research, interact with one another, and find ways to address the chemistry challenges of tomorrow. ICCCS-1 was a great start. The next host for the 2011 symposium will be the University of Queensland’s School of Chemistry and Molecular Sciences.

The following helped to organize the symposium: Juliana Mohamed, Emaiza Mohd Arif, Ang Hwee Hiok, Gopal Selvarajoo, Hong Yimian, Au Pei Wen, Guan Kok Yew, Tan Khai Seng, Calista Low Chin Chin, Benny Ng Sin Wee, June Chan, J.J. Vittal, Lu Yixin and Lee Hian Kee.

To help defray costs of running the symposium, Sigma-Aldrich, the Faculty of Science Dean’s Office and IMRE provided financial sponsorship and support. NUS-Chemistry is grateful to them.