Celebrating 88 years of Chemistry in Singapore

1929 - 2017
Celebrating 88 Years of Chemistry in Singapore

A pictorial journey
Quotes from some of our alumni:

"We must embrace a 'Jump out of the Box' mindset to remain relevant."

"Knowledge in science has provided me with a key to open the door of boundless opportunities."

"Seeking for scientific truths is fascinating and this could be a magnificent obsession."

"Education empowers one to seek the truth and science illuminates the way."

"Science is an ever enriching resource that continues to change the way we understand and innovate."

"Don't just love Science -- be passionate in your love, for it is people with passion who are not only the great achievers but also the ones who pass their love to those around."

"Be steadfast in your service and persistent in your passion and pursuits."

"Small things done consistently in strategic places create major impact."

"Be profound in thinking but diligent in practice."

"In a new and difficult business situation, when I take the first step, the next step reveals itself and after many steps, I find a pathway and usually a solution."

"Knowledge speaks; Wisdom listens."

"Getting a good mentor is the best thing that can happen to a person's life. Conversely, it is also most satisfying to be accepted as a mentor by others. A good mentor is both 'teacher', guardian and, most importantly, a life-long friend."

"Success is a journey, not a destination."

"After spending two thirds of my career in management, I strongly believe that the discipline in Science provided me with grounding and equipped me for my work in corporate management and finance."

"It is not the years in your life but the life in your years that counts."

"Chemistry is our world! We improve people's lives, preserve resources and protect the environment through chemistry-based solutions."

天行健，君子以自强不息
《易经·乾卦》

"Be a driver, not a passenger. Define your journey and you will be surprised where life takes you."

"Be faithful in small things because it is in them that your strength lies."
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The reverse reactions – alumni giving back

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We apologise for any omission or error in this booklet, and would be grateful to receive any advice and feedback for updating our records and for the future.

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References

- *The Scientific Crucible: Science Education in NUS since 1929*, compiled and updated by the NUS Science Library since 2009
- *80 years of Chemistry in Singapore – Making a Difference*, published by NUS Chemistry in 2009
Foreword

This year marks another important milestone of NUS Chemistry as it turns 88! I am delighted to present our 88th commemorative booklet which comprises of pictorial material drawn from our archives and personal collections shared by our alumni, to whom we are most grateful. It documents the different phases that the Department has gone through and how it has evolved since its establishment in 1929 at our Bukit Timah campus.

From its humble beginnings, NUS Chemistry has risen to the top in Asia and has been ranked seventh in the world for the past three years under the QS World University Rankings by Subject. We reached there not only because of the tremendous effort from our staff and students but also the relentless contributions from our alumni. We have been working hand-in-hand throughout these years, overcoming all difficulties to make this happen.

We will keep improving and progressing to remain relevant through up-to-date curriculum, providing more opportunities and exposure for our students. They get to experience working life as chemist through internships, Study Abroad Programmes and meeting other chemists around the world through student exchange, and in-depth research in their final year. We have just launched a new Masters by Coursework programme, namely, MSc in Chemistry for Energy and Environment, in addition to the current MSc in Chemistry and Joint MSc in Industrial Chemistry with Technische Universität München. We will continue to maintain our strong commitment of providing quality education, to make it possible for our students to excel and contribute productively, largely to Singapore economy.

I would like to take this opportunity to thank our alumni, donors, and friends who have continuously given us their valuable time, effort, advice and financial assistance which enable and empower us to grow and excel. With their support, to date we have established four perpetual funds, namely, the Ang Kok Peng Memorial Fund, Kiang Ai Kim Scholarship Fund, Tan Sau Fun Bursary Fund and Chemistry Alumni Fund as well as many other bursaries, book prizes and medals to help our deserving and financially challenged students as well as recognise our students’ achievements.

Thank you too to our alumna who kindly sponsored the celebration dinner and to the organising committee who has been working tirelessly to make this event a reality. I hope through this simple commemorative booklet, it will rekindle our memorable experiences and strengthen our bonds.

Richard Wong Ming Wah
Professor and Head of Chemistry
National University of Singapore
Where our journey began – places and buildings

Raffles College (1929 - 1948)

Raffles College of Arts and Sciences was formally opened by the Governor Sir Hugh Clifford on 22 July 1929. The Department of Chemistry was housed in the right wing of the Manasseh Meyer Building, occupying two storeys of the wing with two lecture rooms with seating capacities of 90 and 40, and two laboratories to accommodate 56 and 44 students respectively. During the Japanese Occupation, the College became the Japanese military headquarters.

University of Malaya (1949 - 1962)

The union of Raffles College of Arts and Sciences and the King Edward VII College of Medicine led to the founding of University of Malaya. It was inaugurated on 8 October 1949. The enrolment increased steadily and it soon became evident that the Raffles College campus in Bukit Timah could no longer accommodate the growing number of students from both Singapore and the Federation of Malaya. It was then decided that the University of Malaya be split into two divisions – one in Singapore and the other in Kuala Lumpur. In 1962, the division in Singapore became the University of Singapore while the one in KL became the University of Malaya as it is known today.
The Tower block, which served as an effective orientation landmark, now remains an integral part of the NUS Bukit Timah campus.

Nissen huts were built in the 1970s to help resolve space shortage.
In 1974, Nanyang University and the University of Singapore established a common admission board to streamline admission of students to first degree courses at the two universities. From July 1978, the Bukit Timah campus became a joint campus offering courses common to the two universities.

Nanyang University started classes in March 1956. The College of Science housed the departments of Mathematics, Physics, Chemistry and Biology. For most of the time, the Department of Chemistry was the largest, in terms of student population.

On 29 July 1980, Parliament approved the National University Bill, giving effect to the merger of the University of Singapore and the Nanyang University paving the way for the formal establishment of the National University of Singapore.
As blocks S8 and S9 were soon found to be insufficient for the rapidly growing research needs, the Department expanded in the late 1980s to various floors of other blocks, e.g. S5 and S7.

The planning and construction of a completely new campus at Kent Ridge began in the late 1970s. In June 1981, the Department moved into its new home – blocks S8 and S9 at the Kent Ridge campus, which individually housed five storeys of laboratories and offices.

Chemistry is the most “delocalised” Department with our laboratories spreading over to floors of different blocks within the Faculty of Science.

Our administrative office at S8 level 3 has also undergone several rounds of minor renovations since 1980s.
Our space crunch issue was further aggravated by new workplace and fire safety regulations imposed in the 2000s. Floor by floor and building by building, laboratories had to be vacated temporarily for regularisation work from 2000 to 2016.
Blocks S9, S9A and LT22 were torn down in 2016 in preparation for a new Science Building. This will house some new chemistry teaching facilities, research laboratories and a central instrumentation facility to serve the needs of a growing department. The building is scheduled to be completed in the last quarter of 2019.

Many of us will remember block S9 and the bridge connecting it to LT24. These are no longer on the new campus map!

To meet our urgent research needs in the meantime, the Department has established new research laboratories in the Tahir Foundation Building MD1 on levels 5, 14 and 17.
The elements – our staff and students

The formative years

Chemistry was taught to medical students in 1905 to meet the need for doctors in Singapore. However, it was only with the appointment of George McOwan as our first Professor of Chemistry in 1929 that saw the establishment of the Department as one of the founding departments of Raffles College.

Research was initiated by RA Robinson when he assumed the Chair in 1948, assisted by Kiang Ai Kim as Lecturer and Lim Chin Kuan as Assistant Lecturer. RA Robinson was instrumental in the rapid expansion and development of the Department.

Kiang Ai Kim graduated with a First Class Diploma in Science from Raffles College and then became the first Singaporean scientist to join the Department in 1938. Kiang AK took over the Chair in 1960 and became the first local person in the history to be both Professor and Head of Department.

Those formative years also saw the Department producing a number of graduates – practically all of whom played prominent roles in the country and the region. Included among them were Ang How Ghee, Ang Kok Peng, Augustine Ong, Chan Kai Chong, Francis Morsingh, Huang Hsing Hua, Koh Lip Lin, Lee Kum Tatt, Lim Chin Kuan, Loke Kwong Hung, Tan Eng Liang, etc.
Ang Kok Peng received his BSc degree in chemistry from the University of Malaya in 1950, followed by a Master and a PhD degree. He became the Head of Department from 1971 to 1988 and brought the Department to the forefront of chemical education and research during that period.

Koh Lip Lin is also an alumnus who earned his BSc degree from Nanyang University in 1959. Koh LL was the first Dean of Science at NUS, and had served as the Head of Chemistry and Dean of Science at Nanyang University before the merger. He is well-known for his work in x-ray crystallography and contributed significantly in setting up the x-ray diffraction facility at the Department. He continued to offer selfless guidance to staff and students on solving crystal structures throughout his retirement years.

Sim Keng Yeow headed the Department from 1988 to 1996. He graduated from University of Malaya with BSc (Hons) and MSc in the early 1960s. He took an active interest in the professional activities of chemistry and had served in various capacities at the Singapore National Institute of Chemistry (SNIC), which was formed in 1970 as the professional chemical body representing chemists in Singapore.

Heads of Chemistry over the 88 years:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>1928-1940</td>
<td>G McOwan</td>
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<tr>
<td>1940-1943</td>
<td>D Purdie</td>
</tr>
<tr>
<td>1946-1948</td>
<td>M Jamieson</td>
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<tr>
<td>1948-1960</td>
<td>R A Robinson</td>
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<tr>
<td>1960-1971</td>
<td>Kiang Ai Kim</td>
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<tr>
<td>1971-1972</td>
<td>Ang Kok Peng</td>
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<td>1972-1975</td>
<td>Lee Hiok Huang</td>
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<tr>
<td>1975-1987</td>
<td>Ang Kok Peng</td>
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<tr>
<td>1987-1996</td>
<td>Sim Keng Yeow</td>
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<tr>
<td>1996-1997</td>
<td>Lee Soo Ying</td>
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<tr>
<td>1997-1998</td>
<td>Hardy Chan Sze On (Acting)</td>
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<tr>
<td>1998-1999</td>
<td>Lai Yee Hing</td>
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<tr>
<td>1999-2004</td>
<td>Andy Hor Tzi Sum</td>
</tr>
<tr>
<td>2004-2005</td>
<td>Lee Hian Kee</td>
</tr>
<tr>
<td>2005-2009</td>
<td>Andy Hor Tzi Sum</td>
</tr>
<tr>
<td>2009-2012</td>
<td>Xu Guo Qin</td>
</tr>
<tr>
<td>2012-2015</td>
<td>Loh Kian Ping</td>
</tr>
<tr>
<td>2015-present</td>
<td>Richard Wong Ming Wah</td>
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</tbody>
</table>
People and Pictures 1950s - 1970s

Class in the 1950s

Honours class of 1964

Honours class of 1971

Class in the 1970s

Class of 1976, Nantah
People and Pictures 1970s - 1980s

Class of 1977, Nantah

Class of 1977, SU

Class in the 1980s

Honours class of 1984

Honours class of 1989
Honours class of 1994

Class of 1997

Class of 1998

Class of 1999

Applied Chemistry class of 2004
Equally important were the contributions of staff in the laboratories and the administration office, and together with our faculty members the Department flourished.
Where chemistry is happening – lecture theatres, laboratories and library

With Singapore’s independence, the Department aimed at being relevant to our young nation. Manpower needs especially for Science teachers were a matter of high priority. Research and teaching curricula sought to be relevant and applied wherever possible.
In 1961, responding to the need of the first phase of Singapore’s industrialisation, the Department introduced a course in Applied Chemistry. Three years later, the Honours course in Applied Chemistry was started with six students, all of whom passed and formed the first batch of Honours graduates. The students had each four to six weeks industrial training before the start of the course. FHC Kelly, the first and only Professor of Applied Chemistry was appointed in 1968 to take charge of this course.

In April 1975 the Applied Chemistry section of the Department formally became the Department of Chemical Engineering within the Faculty of Science awarding BSc (Chemical Engineering) degree. This department was transferred to the Faculty of Engineering in 1980.
Although chemistry laboratories have been divided into the traditional categories of Inorganic, Organic and Physical Chemistry, a separate Analytical Chemistry section was introduced in 1974. This arose as a result of recognising the growing demand for analytical and quality control work.

In the 1980s, an introductory computer course was compulsory for all first-year students who were not reading the Information Systems or Computer Science course. As such, every science student acquired some formal computer training by the end of the first year.

Chemistry B was introduced as a third-year subject in 1982 for students interested in Industrial and Applied Chemistry. Students could thus take “Double Chem” (Chem A and Chem B) or Chem A with either Physics or Math in their third year.

“Direct Honours” course was introduced in 1982 for outstanding students to complete their Honours degree in three years. The objective of this course is to identify outstanding students and give them special training through personal and in-depth tuition and thus enable them to attain their fullest intellectual potential.
In early 1990s, students were seen working in the laboratories without lab coats and goggles.
The Modular System was implemented since academic year 1994-95. This is part of NUS’s effort to constantly keep up with changing needs. One of its main objectives is to provide a more flexible structure that allows a healthy diversity of learning opportunities so that students can develop to their fullest potential.

With the implementation of Workplace Safety and Health (WPSH) policies throughout the campus, safety training has become an important part of our teaching. It is compulsory for students to put on a laboratory coat and goggles whenever they are working in the laboratories. They are also taught to run through risk assessments before performing any experiment.

With the wide usage of internet and advancement of Information Technology, teaching has also been transformed and faculty members are encouraged to teach in a more interactive manner. Some modules are now taught in “flipped classroom” manner, and some are offered online as part of the Internal Blended Learning Online Courses (iBLOCs) initiative launched in 2013.
The Applied Chemistry programme was reintroduced in July 1997 and students are awarded the Bachelor of Applied Science (BAppISc) degree. One special feature in this programme is the compulsory four-month Professional Placement in the 3rd year. This offers students a first-hand encounter with the chemical industry and provides them an opportunity to network with potential employers.

From 2011, students in the Faculty are allowed to enrol in Undergraduate Professional Internship Program (UPIP) for vacation or one-semester long internship with companies. With the introduction of specialisations in Medicinal Chemistry, Materials Chemistry, or Environmental & Energy Chemistry, the Applied Chemistry programme ceased in 2013.
The Food Science & Technology (FST) programme was set up in 1999 at the Department with strong support from the Faculty and the Department of Biological Sciences. The Programme was timely initiated, with encouragement from EDB, to meet the shortage of food experts in cutting edge food industry and the substantial need of food research in this region.

A four-year BApplSc (Hons) degree course was developed by the pioneer team led by Philip J Barlow, with the first cohort of students admitted in August 1999.

Being an applied course, the Programme works very closely with local food industry on collaborative projects, research & development, internship programmes and testing services. With increasing awareness, the Programme also received strong support from the industry in terms of scholarships, awards and prizes.

The International Union of Food Science and Technology (IUFoST) accreditation acquired for our FST undergraduate degree courses since 2013 is a significant milestone and recognition to this Programme.
In June 2009, the Food Research Corridor was set up with support from the Faculty of Science to consolidate all individual research laboratories to a thematic shared laboratory. It was the first model on resources sharing which proved to work effectively for small research groups.

Some FST highlights in local media

Eleven NUS scientists and engineers among the world’s most influential scientific minds

Associate Professor HAJAI Dyejen
Department of Chemistry
NUS Faculty of Science

NUS researchers create novel probiotic beer that boosts immunity and improves gut health

NUS scientists roll out diabetic-friendly bread

Using the plant pigment anthocyanin, scientists have found a way to cause the sugars in bread to be digested at a slower rate than regular white bread, which in turn helps improve blood glucose control.

Durian wine, anyone?

NUS study shows potential of blue LEDs as novel chemical-free food preservation technology

Does durian smell less pungent to an older nose?

NUS team finds way to keep cut fruit fresh longer

We are proud that our FST section is very active on the international platform of frontier research and advance technologies, keeping up with global challenges and competitiveness. Moreover, the Programme keeps pace with the flourishing food industry where the spirit of innovation, process, and safety standards are constantly being improved.
From 1980s to 1990s, NUS was rapidly transforming into a research-intensive university. It was then decided that the Department should centralise common research instruments and facilities under one umbrella to provide an integrated solution for managing asset maintenance and deliver consolidated services. The Centre for Molecular & Chemical Analysis (CMAC) was hence established in 1998.

The Centre soon became an important centralised instrumental facility at NUS and was renamed Chemical, Molecular and Materials Analysis Centre (CMMAC) in the 2000s.

Over the years, CMMAC has been constantly expanding its capabilities to provide good quality analysis and professional support to both teaching and research at NUS. It also make available its analysis services to institutions and the industry.
Activated and energetic – events and happenings

Meetings / Symposia / Workshops

Department delegates at a Japan Society for the Promotion of Science (JSPS) symposium, 1980s

Meeting in progress, 1970s

Staff training workshop, 1980s

At JSPS symposium, 1990

At the Chemistry booth during Faculty Open House, 2002

Symposium dedicated to Sim Keng Yeow, 2003

Meeting with visitors from King Fahd University, 2011

At the 8th Singapore International Chemical Congress (SICC-8), 2014
In order to release some of our high "chemical energy", sports/games are regularly organised since the early years for staff and students.
Get-togethers

Christmas party with Honours class, 1986

RA Robinson speaking at a department dinner, 1950s

Farewell lunch for Lee Swee Yong, 2003

Staff year end dinner, 1986

Farewell lunch for Philip, 2007

Students outdoor party, 2007

Farewell lunch for Hardy Chan, 2013

Year 1 barbeque, 2015
Since 1971, NUS Chemical Sciences Society (CSS) has been actively involved in promoting the study of Chemistry. Over the years, it has grown under the management of an annually-elected student executive committee. It remains one of the academic-related societies in the Faculty till today.

CSS has been organising many activities for students, e.g. freshman orientation camps, industry visits, graduation nights, etc.
Service to the profession

Ever since the Singapore branch of the Royal Institute of Chemistry (later renamed the Royal Society of Chemistry) was established, many of our Chemistry staff and graduates have played active roles and contributed to the local community. With Singapore’s independence, Tom Elliot, professor and Head of Pharmacy, who had actively identified himself with Chemistry as well, felt that Singapore should have its own Chemistry institute. Thus, the Singapore National Institute of Chemistry (SNIC) was established in March 1970 as a national body for the chemical profession in Singapore. Staff like Huang Hsing Hua, Sim Keng Yeow and Andy Hor provided leadership at SNIC. Many Chemistry staff also supported by serving on the Council.

Regular activities co-organised with SNIC include Singapore International Chemistry Conference (SICC), a biennial conference dedicated to promoting advances in chemistry; National Crystal Growth Challenge; and CHEM•COMM Challenge.

A workshop for teachers on “Project Work”, 2002

Chemistry Speech Contest – now known as CHEM•COMM Challenge

Appreciation plaque, Speech Contest 1983

National Crystal Growing Challenge
Outreach to schools

Outreach activities are organised regularly for the public and prospective students. Such activities communicate our curricula and programmes’ relevance to everyday life and economic development.

Current flagship activities include NUS & Faculty Open House, Early Engagement and JC Afternoons. In alternating years, we also hold the National Crystal Growing Challenge and NUS Chemistry Week.

NUS Chemistry Week 2017. A week-long series of events including Circuit Chem - Practical Challenge (above) and Family Cooking Event (right).
The final products – convocations/commencements

1950s - 1970s

The first historical graduation ceremony of the University of Malaya, 1950

Honours class of 1961

Honours class of 1966

Honours class of 1976

Graduation class, 1970s
The very first convocation of NUS since the merger was held in September 1981 at the Singapore Conference Hall. In later years, convocations took place at the Kallang Theatre.

Honours class of 1983

Graduation class, 1980s

Honours class of 1990

Honours class of 1996
Since the early 2000s, convocation at NUS was renamed commencement. The event has since been held every July on campus at the University Cultural Centre (UCC).
2000s (cont’d)

Graduation class of 2012

Graduation class of 2016

Commencement 2017
Homecoming and reunions

**Homecoming**

It is always a joy to have alumni coming home to visit the Department.

For example, we facilitated the organising of class reunions on campus.

At times, we organise fun activities in the laboratories for alumni and their families.

Chem B class of 1987 reunion

Honours class of 1999 reunion dinner

Alumni Breakfast with the Dean, 2004

Chemist turns magician – Lai Yee Hing on Alumni Day 2000

Alumni Day activities in 1999
The Department held its first official Alumni get-together in February 2000. Close to 250 alumni and staff celebrated the new millennium and anniversary of the Department at Hotel Inter-Continental.

Wong Wai Suin (alumna 1966) drove from Malacca for the reunion, chatting with Tan Seng Chye (alumnus 1967) who flew back from Laos.
The Department celebrated its 75th anniversary in 2003 with a series of activities, that began with an alumni dinner on 8 November 2002 at Raffles Hotel.
To celebrate our 80th anniversary, the book “80 years of Chemistry in Singapore – Making a Difference” was launched.
Our alumni in their element

Both here and elsewhere, a distinct characteristic of Chemistry has been the quality and contribution of our alumni. Several of these have been honoured by the Faculty of Science as our Outstanding and Distinguished Science Alumni. They are listed in the Roll of Honour, proudly displayed at both the Faculty and outside the Department Office at S8, bringing pride and inspiration to all, especially our students.

Many of our alumni have distinguished themselves both in and out of the field of Chemistry. We take the opportunity to summarise some of their successes and significance in the various areas listed below.

--- Political Office

Among our pioneers, Ang Kok Peng, Tan Eng Liang, Koh Lip Lin, Yeo Ning Hong, and Seet Ai Mee gave yeoman service to the nation. Ang KP was among the first academics to be seconded as ambassador in 1968. Tan EL, an Olympian himself, served in sports leadership in and outside Singapore. Both Tan EL and Yeo NH had also made their mark in industry, while Seet AM was exemplary in philanthropy, social work and many educational endeavours. Koh L L was also very prominent and influential among our Chinese-speaking community.
Kiang Ai Kim was the first local Head of Department, and later served as Dean and University council member. Huang Hsing Hua had a distinguished stint as Deputy Vice-Chancellor. He gave outstanding leadership to SNIC and the Federation of Asian Chemical Societies.

Lee Kum Tatt is well known for the creation of the gold-plated RISIS orchid. Together with others like Ang How Ghee, their influence and inputs have extended well beyond their work in the Science Council. Ang H G also contributed significantly in and through the DSO and DSTA.

Tan Seng Chye served outstandingly as career ambassador. Serving our nation in various government and quasi-government agencies have been alumni like Chua Yong Hai, Lim Siok Peng, Maria Choy, Ng Kee Choe, Pek Siok Ching, and Tan Hui Boon. Younger alumni in these areas include James Toi, Lee Fook Kay and Ong Toon Hui.

Beyond our own University, others like Rayson Huang served as founding Head of Chemistry in the University of Malaya in Kuala Lumpur, as Vice-Chancellor of Nanyang University and later of the University of Hong Kong. Together with Rayson Huang in KL were Loke Kwong Hung, Augustine Ong and Francis Morsingh. Both F Morsingh and A Ong later became Deans of Chemical Sciences at Universiti Sains Malaysia, with the latter also prominent in the palm oil industry.
Many more alumni have contributed in academia. Pioneers included Chan Kai Chong, Chew Chwee Har, Ellen Wong Hee Aik, Gan Leong Ming, Goh Suat Hong, Lawrence Chia, Miranda Yap, Mok Chup Yew, Robert Hui Kou Mow, Sim Keng Yeow, Siow Kok Siong, Wong Chiang Siang and Wong Ming Keong.

Education and Chemistry seem synonymous. From John Yip as Director of Education to the many chemistry teachers who inspire the next generation in the National Institute of Education, our colleges and schools, we have many alumni serving as school principals and as heads of science.

Many of our alumni are directly involved in working on national education policies and good practices. Tan Bee Geok was among the pioneers and later, long-time head of the Gifted Education Programme. Ng Cheng Siong contributed significantly at Singapore Polytechnic, while Lawrence Chia was seconded to lead the Anglo-Chinese School (Independent). Lai Yee Hing was the first principal of the NUS High School of Mathematics and Sciences. Yan Yaw Kai is now Head of the NIE Department of Natural Sciences & Science Education.

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**Academia (cont’d) and Education**

Besides having distinguished careers building on their University education, Joanna Wong and others like Tan It Koon have been exemplary in their respective influence and impact in the cultural life of Singapore and beyond.
Industry

In the various fields of industry, some of our alumni are indeed well-known entrepreneurs and innovators. Whether it in pioneering new areas or strengthening existing firms or furthering family interests, we have chemistry graduates like Audi Fong, Chay Hong Leng, Chen Pu, Daniel Chia, Jason Nguyen, Kwan Fook Ngah, Kwok Kain Sze, Lan Weiguang, Ler Chwee Chua, Lim Chin Kuan, Ooi Hoe Seong, Teo Ah Bah, Teo Kee Meng, Wong Ah Long, Wong Chiang Siang, Yeo Keng Joon and Zhang Huajun. Their contributions have been wide-ranging and well reported. Furthermore, many of these alumni have also been exemplary in philanthropy and remembering their alma mater.
Some prominent chemistry alumnae across various fields

Many of our alumnae do us proud too. Among the exemplary ones in business, industry, volunteer agencies and the commercial world are Audrey Liow, Chen Sin Yee, Chew Kai Hwa, Dorothy Chan, Irene Tan-Goh, Jane Lim-Wee, Koh Mui Keng, Lien Wen Sze, Rita Lau, Saw Phaik Hwa, Olivia Lum, Verleen Goh and Wong Wai Suin.

Anita Nazareth contributed to the World Bank in Washington as well as the Commonwealth Secretariat in UK.

Chin Kwee Chin was Editor of the Chinese Current Affairs in Mediacorp. She was also a host at Radio Singapore International (新加坡国际广播电台).

Through applying chemistry knowledge to solve crime scene problems, Lim Chin Chin set up a forensic expert group in Singapore.

The outstanding contributions of Chong Yoke Sin and Natasha Kwan in the field of information technology and related areas have shown how versatile and effective our Chemistry graduates can be.
The reverse reactions – alumni giving back

The Department is very fortunate that Chemistry alumni have been continually and relentlessly giving back their time, effort and gifts to help the Department and our students in various ways.

Mentoring

One of the ways in which alumni give back is to assist in mentoring our students in realising their career aspirations and prospects. These include providing guidance during their internships and at alumni networking events.

In recent years, alumni are also invited to attend the Honours Symposium in April. They help to select posters for the Chemistry Honours Poster Achievement Award and network with our final year students. Such mentoring is very useful and we hope to see more alumni volunteering their service in this respect.

Cookies made by alumna for Department’s 85th anniversary.

At a career talk and sharing event, 2013

At Honours Symposium and Networking with Alumni, 2017

Delivering the address at Commencement 2017

Alumni forum discussion, 2016
Giving

It is also heartwarming that alumni, staff and students have pooled together to establish funds in honour of several professors. The Department is very grateful to have these additional resources to fulfil our commitment to the pursuit of a holistic education for all.

Ang Kok Peng Memorial Fund

The Ang Kok Peng Memorial Fund was established in 1997, with the aim to support educational programmes and activities for the development of faculty, staff and students, in line with his work in chemistry education and research.

With the support of Ang Kok Peng Memorial Award for Undergraduates, our deserving students can gain overseas experiential exposure either through industrial attachment or student exchange. The Ang Kok Peng Memorial Award for Teachers, on the other hand, supports chemistry teachers to upgrade themselves through pursuing graduate studies at NUS. The Ang Kok Peng Memorial Lectureship provides for the invitation of overseas renowned speakers, for example, PW Atkins was invited to give the Memorial Lecture at Singapore International Conference 3.

In addition, the Fund also enables the Department to regularly organise “Dialogue on Chemistry Education”, a platform for the exchange of ideas among educators in schools and institutions of higher learning in Singapore to better the teaching and learning of Chemistry.
Giving (cont’d)

**Kiang Ai Kim Scholarship Fund**

With the objective to recognise and encourage outstanding students to read Chemistry at the University, the Kiang Ai Kim Scholarship Fund awards annual scholarships to graduate and undergraduate students, and also Best Research Publication Award to graduate students.

The Kiang Ai Kim Scholarship Fund was established in 2000, through the efforts of a fund-raising committee chaired by Wong Ah Long. The Fund honours Kiang AK’s contributions to the Department as well as to the progress of Chemistry in Singapore and the region. Since January 2003, the Fund has supported more than 10 graduate students to pursue PhD studies in Chemistry.

I attribute my opportunities, and the resulting exposure I have been given, to being a Kiang Ai Kim Scholar. Certainly, if I had taken a scholarship with a bond, I would not have the option of exploring other paths till much later, by which time my skills would have become a lot more niche. As a Kiang Ai Kim Scholar, I feel empowered to take the road less travelled, given that Prof Kiang was himself a trailblazer, as the first Singaporean Professor.

Chen Hsiao Wei
Remembered fondly as a very caring and concerned teacher, and often affectionately known by students as “Mama Tan”, Tan Sau Fun passed away peacefully at the age of 80, on 28 February 2011. As a fitting way to exemplify and amplify her very significant contributions to the education and welfare of students, alumni and staff established an endowed bursary fund in her memory.

The Tan Sau Fun Bursary is awarded annually to deserving and financially challenged Chemistry students.

I am a Chemistry Major and was recently told that I would be receiving the Tan Sau Fun Bursary once again this year. I would like to take this opportunity to sincerely thank you.

My parents got divorced some years ago and I have not really been in contact with my father since then. About 6 years ago I moved in with my maternal grandparents and aunt as my mother decided to move to Australia for good. Thankfully, my grandparents and aunt have been very understanding and taking care of my every need. That said, I do not wish to burden them with my university tuition fees. My grandparents are old and sick but still going to work so that they can pay for their own medical bills and help out with the household bills, while my aunt is also a divorcee and is supporting her son who is going to study Medicine after completing his National Service.

With your support in the form of this bursary, I will be able to pay off my student loan faster and start helping out at home financially. Hopefully this will allow my grandparents to take a break after all the years of hard work and ease the burden on my aunt. More importantly, I can focus on my studies for now instead of looking for a part-time job to save up some money. I am honoured to be a recipient of this bursary as I understand that Prof Tan contributed a lot to Chemistry. I will do my best to give back to this fund when I become financially independent so that I can help future undergraduates with the same interest in Chemistry.
Giving (cont’d)

Chemistry Alumni Fund

Initiated by several senior alumni, a fundraising campaign was launched in conjunction with SG50 celebration to establish the Chemistry Alumni Fund. This endowed Fund contributed by alumni, together with government matching, allows the Department to have additional means to encourage deserving students with awards/prizes as well as initiate activities that can enhance the teaching and learning of our students.

We are grateful to have received several anchored gifts during the campaign to set up individual study awards. The objective of these awards is to encourage bursary students to excel with good academic performance.

The following awards were established under the Chemistry Alumni Fund:

- Far East Organization Study Award x2
- Koh Lip Lin Study Award
- Lan Weiguang Study Award
- MG Study Award
- Tan Eng Liang Study Award
- Tan Ean Kiam Study Award
- Tan Tock Peng Study Award
- Tan Tock San Study Award
- Teo Cher Aik, Richard Study Award
- Wong Ah Long Study Award
- Yeo Keng Joon Study Award
- Lawrence Chia Study Award

It is encouraging to note that alumni have, in establishing the above, made an award in memory of Koh LL, and another in the case of Lawrence Chia, in conjunction with his 80th birthday in 2016.
There are also several bursaries, medals and book prizes contributed by individual alumni or staff to encourage Chemistry students in various ways. These are:

- Kwan Fook Ngah & Kum Lai Yoke Bursary
- Saw Phaik Hwa Bursary
- Tan Eng Liang Bursary
- Goh Teng Loon & Wong Kim Lo Medal
- Sim Geok Soo Medal
- Lim Chin Kuang Book Prize

**Science Merit Scholarships**

Singapore is faced with a multitude of challenges brought on by continual socio-economic development and rapid technological changes. In facing these challenges, NUS Faculty of Science has the unique advantage from its long history and vast experience in science education to play a key role. We need to continually provide a critical mass of graduates who understand the hard science behind complex challenges and can craft science-based solutions that improve our society. In 2017, the Faculty thus started an effort to raise 100 Merit Scholarships with the aim to fulfil our commitment to Singapore.

Thus far, the following scholarships have been set up for Chemistry students:

- NUS Science - Kiang Ai Kim Merit Scholarship
- NUS Science - Lawrence Chia Merit Scholarship
- NUS Science - Yeo Keng Joon Merit Scholarship

In conjunction with the Faculty’s efforts, the Department is indeed grateful that we have much support towards this end, especially at our 88th anniversary celebration. Knowing that Chemistry can make a difference, let us continue to attract deserving and talented students into taking up this discipline. The setting up of a Merit Scholarship in honour of Huang HH can thus be seen as a part of these efforts and the celebration.
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We would like to express our sincere appreciation to all who have in one way or another contributed to this 88th anniversary celebration, in particular the following:

Far East Organization
Asia Industrial Development Pte Ltd
How Huai Hoon Surveyors
Esco Micro Pte Ltd
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