

Federation of Asian Chemical Societies

# FACS

NEWSLETTER

No. 1 / 2007



**Kuwait Chemical Society Symposium  
on Application of Catalyst in the Industry  
2006 Activities and 2007 President Profiles  
of the Member Societies**



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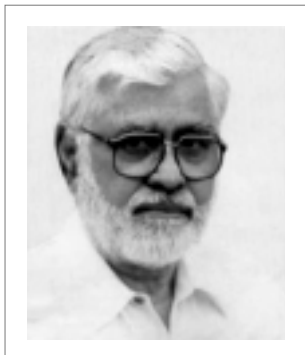
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# Obituary

## The Late Academician Dr. Tan Sri B C Sekhar (1929 – 2006)



*The Late academician Dr. Tan Sri B C Sekhar, born on November 17, 1929 at Sungai Buloh, Malaysia near the 3,400-acre experiment station of the Rubber Research Institute of Malaysia (RRIM), was fondly known as Mr Natural Rubber for his motivation, passion and commitment to the development of natural rubber industry. He revolutionized and modernized Malaysia's rubber industry and put the crop on the world map.*

*Sekhar started work as a chemist at the RRIM in 1949 after obtaining his Bachelor of Science in Chemistry from the University of Delhi at the age of 19. In 1953, he was given a United States government fellowship to study polymer chemistry at the University of Michigan where he obtained his Master of Science in 1954. When he returned to RRIM in early 1955, he was promoted to Research Officer and continued his lifetime love affairs with natural rubber.*

*Sekhar served the natural rubber industry for about 50 years in various capacities. He was the first Asian Director of the Rubber Research Institute of Malaysia in 1966 and, subsequently, become the first Asian Controller of Rubber Research and Chairman of the Malaysian Rubber Research and Development Board. Under his leadership, the Rubber Research Institute of Malaysia (RRIM), Tun Abdul Razak Rubber Research Centre (TARRRC) in Hertford, Britain, and the Malaysian Rubber Board (MRB) rose to great heights and gained international recognition for excellence in research, modernization of the rubber industry and the vigorous promotion and expansion of rubber usage.*

*Besides natural rubber, B C Sekhar was also totally devoted to the development of the profession of chemistry in Malaysia in particular, and Asia in general. He was one of the Founding Members of Institut Kimia Malaysia (IKM) in 1967 and served as the second President of IKM for eighteen years from 1969. He played a pivotal role in the enactment of the Chemists Act 1975 which incorporated IKM as the agency under the Act on November 1, 1977. Under his leadership, IKM went on to become one of the strongest professional bodies in Malaysia, promoting the development of chemistry and regulating the practice of chemistry. IKM's status as the premier chemistry organization, both in Malaysia and Asia, was primarily due to Tan Sri B C Sekhar's effort.*

# Obituary

*Sekhar was also actively involved in the development of chemistry in Asia. He played an instrumental role in the setting up of the Federation of Asian Chemical Societies (FACS) in 1979 and became its second President from 1981 – 83. For his contribution to the development of chemistry in Asia, B C Sekhar was conferred the FACS Citation Award in 1992. Under his leadership, FACS started its first Asian Chemical Congress (ACC) in 1985 in Singapore and since then ACC has become the flagship event of FACS.*

*For his contribution to chemistry and the natural rubber industry, Tan Sri Dr B C Sekhar received many awards and recognitions, among which are the following:*

*The Colwyn Medal, the highest award of the Institution of Rubber Industry in 1969*

*Honorary Doctor of Science from the University of Singapore in 1970*

*Ramon Magsaysay Award for Government Service in 1973*

*PSM Award from the King of Malaysia which carries the title of 'Tan Sri' in 1975*

*IKM Gold Medal in 1975 for his distinguished contribution to the profession of chemistry in Malaysia*

*Senior Fellow of the Academy of Science Malaysia in 2000 which honors him with the title of “Academician”*

*Tan Sri died of a heart attack on September 6, 2006 in Chennai, India at the age 77. He left behind wife Puan Sri Sukumari Sekhar, four children and 8 grand children. With the demise of B C Sekhar, the world has lost a great man who had contributed so much to the development of the natural rubber industry and to the profession of chemistry in Asia.*

**Daktuk Dr. Ting-Kueh Soon**

*Institut Kimia Malaysia, Kuala Lumpur, Malaysia*

# Obituary

## The Late Prof. Hitoshi Ohtaki (1932 – 2006)



*I*t is with great sadness for me to have to write an obituary for the late Prof. Hitoshi Ohtaki. When I heard the news of his sudden death, it was difficult for me to believe because, as far as I knew, he was always very active and lively. Prof. Ohtaki passed away due to a sudden heart attack in the early morning of November 5th, 2006. His funeral was held in the evening of November 7th at the Church of Nogeyama in Yokohama City.

*Prof. Ohtaki was born in 1932 and graduated from the Department of Chemistry, Faculty of Science, Nagoya University in 1955. After studying for four years in the graduate school of the same university, he was appointed as a research assistant of Tokyo Institute of Technology (TIT). During this time, he spent four fruitful years in the Royal Institute of Technology, Sweden, as a Postdoctoral Fellow. From 1965 to 1970, he was first a lecturer and later an associate professor at his alma mater. In 1970, TIT appointed him as an associate professor, and in 1973, he was promoted to a full professor of TIT.*

*In 1988, he moved from TIT to the Institute of Molecular Science and concurrently acted as the Director of the Coordination Chemistry Laboratories until 1993. In 1993, he accepted an offer from Ritsumeikan University, where he remained for ten years until 2003. It must be added that even after his retirement from Ritsumeikan University, he remained very active both in international and national chemical worlds.*

*I understand that the achievements of Prof. Ohtaki in the fields of solution and coordination chemistry are indeed great as evidenced by his many scientific papers and by his involvement in many international societies as an editor or consultant and in many international conferences as a central organizer. However, it is beyond my ability to discuss fully his achievements in inorganic chemistry, since I am an organic chemist. In addition, it is impossible for me to list all of his work in many other universities and governments, activities in various scientific societies, and honors received, simply because there are too many. Thus, I would like to concentrate on Prof. Ohtaki's activities relating to the Federation of Asian Chemical Societies (FACS) and to Asian chemistry, in general.*

*I believe that four years experience in Europe helped him to understand the importance of human relations in promoting chemistry. I heard from Prof. Ishiguro, who was one of his coworkers, that Prof. Ohtaki tried to visit as many universities as possible in order to meet chemists and establish good friendships. In other words, he recognized the necessity of internationalization if one wishes to promote the chemistry of one's own country. I guess Prof.*

# Obituary

*Ohtaki believed that the promotion of Japanese chemistry could be achieved if and only if Asian chemistry, in general, was promoted at the same time. That is the reason why Prof. Ohtaki was so active in the promotion of Asian chemistry.*

*The beginning of the relationship between Prof. Ohtaki and FACS was interesting. Even after joining to FACS in 1981, the Chemical Society of Japan (CSJ) was rather hesitant to strengthen its relationship with FACS. In other words, CSJ was reluctant to accept the responsibility of hosting the biennial Asian Chemical Congress (ACC) in Japan, although this was long expected. Meanwhile, CSJ asked Prof. Ohtaki to become the Chairperson of the Committee on International Exchange, CSJ, and at the same time, to become Japan's national representative to FACS. Prof. Ohtaki replied to CSJ authorities to the effect that he would accept the appointment under the condition that CSJ should be more positive towards FACS. CSJ had to promise Prof. Ohtaki to host ACC, if asked. This was indeed the first step to the deep involvement of CSJ in FACS. Indeed, it was decided that CSJ would host the 7th ACC. Based on this promise with Prof. Ohtaki, CSJ made a lot of effort to make the 7th ACC in Hiroshima as successful as possible.*

*The contribution of Prof. Ohtaki to FACS was more than great. From September 1995 to October 1997, he was the President-Elect, and for the following two years, he acted as the President. Meanwhile, he organized the 7th ACC in May 1997. For the following two years, from November 1999 to July 2001, he remained as a cornerstone of FACS as a Past President. His wide international fame was very helpful when IUPAC 2001: World Chemistry Congress (the 1<sup>st</sup> WCC)<sup>1</sup>, a joint conference between the 38th Congress of the International Union of Pure and Applied Chemistry (IUPAC) and the 9th ACC, was held in Brisbane in July 2001. FACS has now been made as an adhering organization of IUPAC<sup>2</sup>.*

*I was the Secretary General of FACS from 1997 to 1999, when Prof. Ohtaki was the President. This means that I was sitting beside him while he presided over the Executive Council (Ex-Co) meetings of FACS. I tried to make a record of the meetings with the aid of my laptop computer and tape recorder. So, I carefully listened to and recorded the discussions. I also spent lots of time preparing the minutes. Therefore, I always tried to reproduce whatever he discussed during the meetings. I found that his opinion was very clear, fair and logical. What surprised me the most were his very quick responses. Since every discussion was in English, many of the responses from Japanese during the discussions were rather slow. However, Prof. Ohtaki always made quick responses.*

*This is not surprising considering his experiences with international chemical societies, in particular, IUPAC. As early as 1975, he was appointed an Associate Member of IUPAC Division of Analytical Chemistry and was promoted to a Titular Member in 1980, and finally, he acted as the Chairman of this Division from 1984 to 1985. His commitment to IUPAC was further deepened when he was appointed as a Bureau Member of IUPAC in January 1997. He kept this position until December 2004.*

# Obituary

*The scope of Prof. Ohtaki's international activity was indeed very wide as is exemplified by his deep involvement in IUPAC. As mentioned before, his incredible activity seemed to be based on his philosophy of promoting Asian chemistry as much as possible. In this regard, his involvement in Eurasia Conference in Chemical Sciences (ECCS)<sup>3)</sup> should be mentioned. Prof. Ohtaki was one of the three founders of ECCS together with Prof. Rode and Prof. Bertini. The original form of ECCS was founded in 1988. Though the name was changed in conjunction with the broadening of the scope of the conference, the Eurasia conference was held almost every other year in various parts of Asia. Prof. Ohtaki was the president for four conferences out of nine, including the last one held in 2006 in Turkey, which indicated his deep involvement in ECCS.*

*The aims of ECCS are various, but Prof. Ohtaki spent most of his energy organizing world-class international conferences in developing countries within Asia with the help of their worldwide friendship network, through which world-leading scientists could exchange information with scientists, especially young scientists, in developing countries, to emphasize the scientific activities of their countries.*

*Prof. Ohtaki intended to strengthen FACS by cooperating with ECCS. In fact, the 10th ACC, held in Hanoi in 2003, was a joint conference with the 8th ECCS. This was indeed a reproduction of the 1<sup>st</sup> WCC.*

*Prof. M. M. Ito, who was an Ex-Co member from 2001 to 2005, gave me more recent information concerning Prof. Ohtaki. In October 18, 2004, Prof. Ohtaki attended the Silver Jubilee Anniversary of FACS held in Bangkok, where FACS was founded, as one of the Past Presidents, and he made an impressive speech on the prospects of FACS and Asian chemistry. It must be added that Prof. Ohtaki contributed an article entitled "What is FACS? A Brief History and a Personal Experience" to the web page of FACS.<sup>4)</sup> This article strongly testifies to his involvement in FACS.*

*More recently, Prof. Ohtaki attended the FACS Symposium "Advancing Chemistry in Asia and Oceania", held on March 29, 2006 in Funabashi, Japan. All who attended the symposium were pleased to find that Prof. Ohtaki was very fine and active. However, none of the attendants could have ever imagined that it was the last time for most of them to see him.*

*His passing is a great loss to Asian chemistry. FACS should try to promote Asian chemistry as much as possible, and it is a responsibility of FACS to console his soul by promoting Asian chemistry as much as possible.*

**Prof. Yoshito Takeuchi**

*Prof. Emeritus, the University of Tokyo, Japan*

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1) <http://www.allconferences.com/conferences/20010110071133/>

2) <http://www.iupac.org/links/ao.html>

3) <http://www.eurasia2006.org/page.php?Page=Background>

4) <http://www.facs-as.org/about/what-is-facs.htm>

# Kuwait Chemical Society Symposium on Application of Catalyst in the Industry (Fuel, Pollution and Drugs)

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Dec. 9th 2006, PRSC, Al-Ahmadi City, Kuwait

Organized by  
Kuwait Chemical Society (KCS)  
Federation of Asian Chemical Societies (FACS)

Sponsored by  
Equate  
Kuwait Institute for Scientific Research (KISR)  
Al-Essa Medical & Scientific Equipment Co. WLL

- 9:30-10:00**      **Opening Address**  
Dr. Abdul Hameed Al-Hashem (Director of Petroleum Research and Studies Center, PRSC/KISR)  
Dr. AbdulAziz AlNajjar (president Kuwait Chemical Society)  
Prof. Jung Hun Suh (President of Federation of Asian Chemical Societies)
- 10:00-10:35**      **Chairperson:** Dr. Abdulazeem M. J. Marafi  
"Biofuels: Emerging Renewable Energy for the Transportation Sector"  
Daktuk Dr. Ting-Kueh Soon, (Institute Kimia Malaysia, Kuala Lumpur, Malaysia)
- 10:30-10:55**      **Coffee Break**
- 10:55-11:30**      **Chairperson:** Mr. Adnan Al-Shalfan  
"Discrete Physico-Chemical Processes that Characterize Water Pollution"  
Prof. Barry Noller (The National Research Centre for Environmental Toxicology – The University of Queensland, Cooper Plains 4108, Australia)
- 11:30-12:05**      **Chairperson:** Dr. AbdulAziz AlNajjar  
"Peptide-Cleaving Catalysts as a New Paradigm in Drug Discovery"  
Prof. Jung Hun Suh (Dept. of Chem., Seoul National University, Seoul, Korea)
- 12:05-12:20**      **Discussion:** Q & A / Closing & Remarks



## Biofuels: Emerging Renewable Energy for the Transportation Sector

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### Present Energy Scenario

Current energy production is based mainly on fossil fuels such as oil, gas and coal, and to a small extent, nuclear and hydropower. Renewable energy sources such as solar, wind, geothermal and biomass are also being exploited to a very limited proportion. However, current energy scenario in the world is being determined by the following four factors:

- Rising oil prices
- Increasing demand for energy
- Environmental consideration
- Compliance to Kyoto Protocol

Thus to meet increasing demand for energy and offsetting soaring oil prices, there is an urgent need for alternate sources of energy that are renewable, environmentally less polluting and emitting less carbon dioxide. Biofuels, as renewable and green fuels from mainly plant sources, fit exactly into this category.

Biofuels are divided into two main groups, biodiesel and bioethanol. Both these biofuels have great potentials for the transportation sector. Biodiesel can be blended at any level with petroleum diesel to create a biodiesel blend that can be used in compression-ignition (diesel) engines with no or little modifications. Bioethanol, on the other hand, can be blended with petrol/gasoline for use in internal combustion (gasoline) engines. In fact, both these biofuels are now being used to a certain extent in many parts of the world.

The transportation sector is expected to expand substantially in the next two decades. Personal transport is expected to double and freight transport tripled by the year 2025. There is also a greater emphasis on cleaner emission from motor vehicles and

compliance to Kyoto Protocol. Biofuels, as mentioned above, can partially fulfill the increasing demand for energy in the transportation sector with the added advantages of being renewable, green and emitting less carbon dioxide. With current high crude oil prices, biofuels even have an economic advantage in terms of lower cost of production.

### Biodiesel

Biodiesel is produced from vegetable oils such as palm, rapeseed, soya, sunflower seed and other oils. Recent demand for biodiesel is due mainly to the European Commission Directive to increase the share of biofuels usage in EU countries. The Directive has the following objectives:

- To reduce the dependence of EU member states on the petroleum-exporting countries
- To reduce greenhouse gas emissions in compliance with the requirements of Kyoto Protocol

The Directives proposes a gradual increase in the biofuels portion in the following steps:

- By the end of 2005, 2% of fossil fuels will be replaced by biofuels (biodiesel, bioethanol, biomethanol, biogas etc.) in all EU countries
- This proportion will be increased annually by 0.75% to reach 5.75% in the year 2010
- By 2020, this proportion of biofuels will be 20%
- Obligatory blending of 1% of biofuels will be introduced from 2009 (1.75% from 2010 onwards)

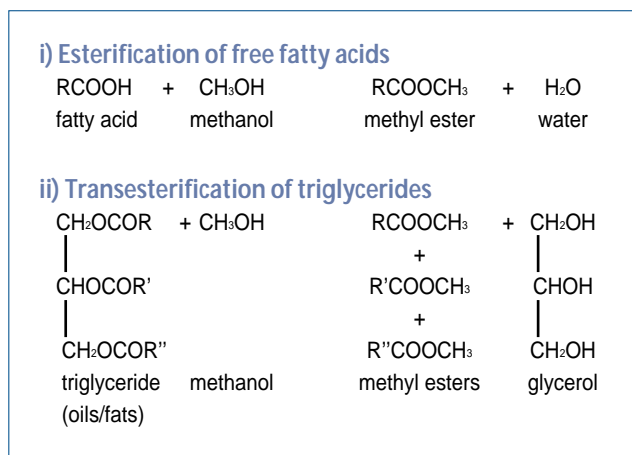
In real terms, this is translated into 4.9 million tones of biofuels or 2.5 million tones of biodiesel in 2005 and gradually increased to 14.0 million tones of

biofuels or 7.3 million tones of biodiesel in 2010. In fact, biodiesel production in EU countries has increased steadily over the years from 1.05 million tones in 2002, to 1.45 million tones in 2003, 1.85 million tones in 2004 and about 2.45 million tones in 2005.

### Palm Biodiesel in Malaysia

The Palm Biodiesel project in Malaysia first started in the 1980s by the Malaysian Palm Oil Board (MPOB), then known as the Palm Oil Research Institute of Malaysia or PORIM. The project entailed the conversion of crude palm oil and its derivatives into their methyl esters and testing the products as diesel substitute in transportation vehicles. A MPOB patented process involving a 2-step reaction of i) esterification of free fatty acids present in crude palm oil to methyl esters with solid acid catalyst and ii) transesterification of the neutral triglycerides with methanol into methyl esters in the presence of base catalyst (Figure 1), is successfully demonstrated in 3,000 tones per annum pilot plant in 1992.

Figure 1



The palm oil methyl esters (palm diesel) and a 50:50 blend with petroleum diesel were used in different types of transportation vehicles. Extensive tests were carried out to determine the fuel characteristics of palm diesel derived from Crude Palm Oil (CPO) and Crude Palm Stearin (CPS) vis-à-vis petroleum diesel based on ASTM procedures. Field trials with different diesel engines were also carried out to measure engine performance, diesel consumption, exhaust emission, maintenance and repairs, and many other parameters

Table 1 shows the key fuel characteristics of the palm oil methyl esters (palm diesels) as compared to Malaysian petroleum diesel.

Table 1: Key Fuel Characteristics of Palm Diesel [Methyl Esters of Crude Palm Oil (CPO) & Crude Palm Stearin (CPS)]\*

Products	Methyl Esters of CPO	Methyl Esters of CPS	Malaysian Diesel
Specific Gravity ( ) (ASTM D1290)	0.8700@74.5	0.8713@74.5	0.8330@60.0
Colour (visual)	Reddish	Orange	Yellow
Sulphur Content (% wt) (IP 242)	< 0.04	< 0.04	0.10
Viscosity @ 40 (ASTM D445)	4.5	4.6	4.0
Pour Point ( ) (ASTM D97)	15.0	18.0	15.0
Final Recovery (ml)	98.0	98.5	-
Gross Heat of Combustion (kJ/kg) (ASTM D2382)	40,135	39,826	45,800
Flash Point ( ) (ASTM D93)	174	165	98
Conradson Carbon Residue (% wt) (ASTM D189)	0.02	0.05	0.14

\* Source: MPOB

These measurements show that palm diesels are about 4% denser than petroleum diesel and produced 10% less of energy. However, they contain much less sulphur and produce almost no carbon residue.

In terms of engine performance, diesel consumption, exhaust emission, maintenance and repairs, palm diesels are comparable with petroleum diesel with the added advantage of lesser emission of CO, SO<sub>2</sub>, NO<sub>x</sub> and unburnt hydrocarbons.

MPOB has also developed a process to produce a low pour point palm diesel with a pour point of - 21 for export to cold climate countries.

With the patented process, MPOB is in joint venture with three companies to build three 60,000 tone-capacity plants, one in Banting, one in Port Klang and another one in Pasir Gudang. These plants are expected to come on line in 2007.

### Malaysian Biofuel Policy

The development of palm diesel has resulted in Malaysia formulating its National Biofuel Policy in August 2005. The Policy is aimed at encouraging the production and use of palm oil-based biofuels as an alternative, renewable and environmentally friendly energy source. It encompasses the following 3 strategies:

- Production and use of biofuels for the transportation and industrial sectors
- Production for export purposes, especially for the European markets
- Commercialization of biofuel technology as a home-grown technology by the Malaysian Palm Oil Board (MPOB)

Under this Policy, at least 60 licenses were given out by the Ministry of International Trade and Industry (MITI) to set up palm diesel production facilities in Malaysia. At this moment, 12 palm diesel plants are under construction with a total production capacity of more than 500,000 tones per annum.

### Biodiesel Worldwide

Besides Malaysia, the EU countries and USA, many other countries such as Indonesia, The Philippines, India and some African countries are also venturing into biodiesel production and usage. While palm oil is the major source of raw materials for biodiesel in Southeast Asian countries, other countries are using oils from other sources such as spent cooking oils. Biodiesel is definitely going to become a major renewable and green fuel in the transportation sector in the near future.

### Bioethanol

Bioethanol is ethanol derived from plant sources such as corn or sugar cane. Bioalcohol is a general term given to ethanol, methanol and other alcohols derived from biological sources. Fermentation of starchy materials to simple sugars and then to ethanol is as old as civilization. This is the process to produce alcoholic drinks

In fact, ethanol/gasoline blends have been used in transportation vehicles for quite some time in Brazil and a number of other countries. However, high crude oil prices in the last few years have resulted in an

increased interest in using ethanol as blends in internal combustion (gasoline) engines. There is also a parallel development of vehicle engines running on ethanol/gasoline blends by major car manufacturers. With the realization that crude oil prices will remain high due to the depleting nature of fossil fuels, and the necessity to comply to Kyoto Protocol, many governments are taking actions to encourage the use of biofuels, both biodiesel and bioethanol, in the transportation sector. Following EU's footsteps, countries like USA, Japan, Korea, China, India, and even OPEC countries like Indonesia, are taking serious effort to produce bioethanol and biodiesel as energy sources, especially in the transportation sector.

Many oil crops can be used to produce biodiesel. Efforts are also being made to cultivate new oil producing plants such as *Jatropha Carcus* for the purpose of producing biodiesel. As for bioethanol, many starchy crops can be used to produce ethanol. However, there is a huge potential for bioethanol produced from cellulosic materials such as crop residues, wheat straws and wood chips, and other biomass. In fact, in the USA, the Renewable Fuels Association is lobbying for the production of cellulosic ethanol in American Congress. President Bush, in his 2006 January State of the Union Address, has set a goal of making the fuel competitive within six years and US\$150 millions have been allotted for research on biofuels in the 2007 Budget.

### Conclusion

The Biofuels Bandwagon is set to take the world by storm in the near future. Biofuels are an alternative source of fuels that is renewable and green, and their usage is in compliance to Kyoto Protocol.

Current world production system is based on fossil fuels - the Carbon economy. However, fossil fuels are exhaustive. Oil will last another 50, or maybe 100 years while gas and coal another 100 or 200 years at best.

What are the alternatives? Biofuels may be part of the answer to partially fulfill the increasing demand for energy. However, long-term solutions still remain with hydrogen which is clean and inexhaustible, or solar. Another possibility is cold fusion when we are able to manage the technology.

# Discrete Physico-Chemical Processes that Characterise Pollution from Mining

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## Introduction

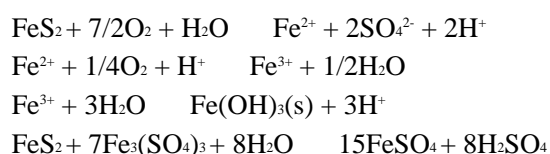
Understanding discrete chemical processes requires knowledge of chemical forms present and ultimately their bioavailabilities to predict effects on biota. Discrete environmental markers, if they exist, may assist to understand dispersion process of contaminants, e.g. where there is more than 1 pollution source. Major ions like carbonate/bicarbonate and sulfate will dominate chemistry of most metal ions.

Environmental markers are defined as molecular species which are indicative of the origin of the associated contaminants during dispersion from their source into the environment. They are usually conservative chemical species. Two main kinds of anionic species are potential environmental markers:

- Oxyanions or transition metals and metalloids (e.g. molybdate, vanadate, dichromate, tungstate & stibnite)
- Complexes which have very high stability (e.g. carbonate, edta, cyanide complexes of metals)

## Sulfate as a major anionic characteristic pollutant of mining

A key process that generates sulfate is acid mine drainage. When sulfide minerals are exposed to O<sub>2</sub> and water they undergo oxidation, yielding acid:



Oxidation of Fe<sup>2+</sup> to Fe<sup>3+</sup> is the rate-limiting step. In pyrite oxidation Fe(III) is major oxidant at acid and circumneutral pH but is not diffusion-controlled. At acid pH, the rate is allegedly increased by iron- and

sulfur-oxidising bacteria. The use of laboratory-derived rates to predict field rates is yet not possible.

The relative rates of dissolution and half-lives, using established rate laws are:

- Pyrite oxidation by Dissolved Oxygen 54 years
- Pyrite oxidation by 0.001M Fe<sup>2+</sup> 116 days
- Pyrite oxidation + bacteria < 30 min
- Olivine dissolution 4.5 years @ 25 °C and 10 days @ 65 °C
- Calcite 3 mins
- Dolomite 1 hour

Pyritic chemical structure and relative sulfide mineral electrode potentials cover the range Eh from -100 mV for pyrrhotite (FeS) to an upper limit of approximately 400 mV for pyrite, arsenopyrite and copper and nickel sulfides. Thus a number of sulfides have similar redox characteristics to pyrite.

The generation of acidity from sulfide minerals is in balance with naturally-occurring buffers. Key secondary minerals and their respective pH of formation are as follows:

Mineral	pH
jarosite [XFe <sub>3</sub> (SO <sub>4</sub> ) <sub>2</sub> (OH) <sub>6</sub> ] where X= K, Na, H <sub>3</sub> O	2
ferrihydrite [Fe <sub>5</sub> HO <sub>8</sub> ·4H <sub>2</sub> O]	2.7
gibbsite [Al(OH) <sub>3</sub> ]	3.7
siderite [FeCO <sub>3</sub> ]	4.5
calcite [CaCO <sub>3</sub> ]	5.9

Other common secondary acid mine drainage minerals include: schwertmannite [Fe<sub>8</sub>O<sub>8</sub>(OH)<sub>6</sub>SO<sub>4</sub>], alunite [KAl<sub>3</sub>(SO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub>], melanterite [FeSO<sub>4</sub>·7H<sub>2</sub>O], lepidocrocite [γ-FeO(OH)], gypsum [CaSO<sub>4</sub>·2H<sub>2</sub>O], gibbsite [Al(OH)<sub>3</sub>], diasporite [AlOOH], K-Alum [KAl(SO<sub>4</sub>)<sub>2</sub>·12H<sub>2</sub>O], jurbanite [AlOHSO<sub>4</sub>] and scorodite [FeAsO<sub>4</sub>·2H<sub>2</sub>O]. Thus sulfate has key role

in secondary mineral formation from acid mine drainage.

The long term impacts of sulfate are important at mine sites. Water quality in voids may be limited by increased salinity in soil, seepage and acidification of soils and sediments and complete or partial neutralisation may occur. A problem occurs with the impact of sulfate exposure on cattle and the ANZECC guidelines used in Australia and New Zealand. The ANZECC water quality guideline for cattle is 1000 mg/L. However mine void water quality often exceeds this level. Cattle consuming 2000-2500 mg/L show initial laxative effect then recover. Apparent toxicity to cattle occurs when sulfate concentration is 2000-4000 mg/L with death at 7000 mg/L. However, no dose-response characteristics exist for these levels.

### Examples of environmental markers of water pollution

#### Rhenium in waste water at Ranger Mine

Ore at the Ranger uranium mine at Jabiru, Northern Australia contains rhenium (Re) as an impurity. The Eh-pH diagram for Re-O-H shows that the perrhenate ion  $\text{ReO}_4^-$  (Re VII) is the dominant species under oxidising conditions of natural waters and shallow groundwater.

**Table 1. Land application of mill runoff waters at Ranger uranium mine Northern Territory and dispersion to nearby Magela Creek**

SITE	pH	Conductivity (µS/cm)	U (µg/L)	Re (µg/L)	Fe (µg/L)
Ranger Retention Pond 2	6.33	1255	F 900 T 910	F 34 T 32	F 150 T 180
Magela Creek Pool adj Land Appl	3.54	997	F 0.017 T 0.034	F 12 T 12	F 1200 T 2600
Magela Creek Eastern side	4.67	34	F 0.3 T 2.5	F < 0.1 T < 0.1	F 230 T 2600

T=total; F = 0.45µm filtered

Land application water from Ranger Uranium Mine mill runoff retention pond is dispersed to the

nearby Magela Creek via a groundwater pathway (Table 1). Whilst uranium in the mill runoff waters is attenuated following application to soil, rhenium is observed to be present in the groundwater and seepage to the creek without a reduction in rhenium concentration.

Land application has been used for many years to remove radionuclides and heavy metals. Uranium as U(VI) was present in cationic forms and was adsorbed very efficiently with first few cm of soil where organic matter is highest. Removal of uranium is > 90% efficient. The contrasting behaviour of rhenium in Ranger waste water is apparent. Note the presence of Fe which was released to Magela Creek following groundwater saturation of soil from the land application.

#### Antimony as a limiting constituent in water release

Following summer rain in 1999, excess wastewater accumulated in the tailings dam at the Gympie Eldorado Gold Mine Queensland and needed disposal. Antimony was identified as a limiting constituent due to its presence as the anion stibnite. The concentration (mg/L) of antimony upstream, at the point of discharge and downstream showed a linear trend lines indicating that dilution was the key reduction process. The concentration of gold upstream, at the point of discharge and downstream showed a similar response to that observed for antimony. Both metals in this case can be used as environmental markers.

#### Cobalt as an impurity in cyanide cleanup

Treatment of the cyanide spill with ferrous sulfate at the Tolukuma gold mine, Papua New Guinea, showed that a cobalt impurity was present in the ferrous sulfate and not in the surrounding soil. The cobalt impurity in the ferrous sulfate appeared to have complexed with cyanide as cobalt was detected in downstream waters. Cobalt II is known to be complexed strongly by cyanide as  $[\text{Co}(\text{CN})_6]^{4-}$  (log k = 64). Cobalt is generally present in tailings seepage and treatment of cyanide spills. Cobalt-cyanide complex is a very stable complex making it a suitable environmental marker

#### Complexation of metals with cyanide and chloride

A contrasting example from wet dry tropical

Table 2. Migration of metals from old tailings at Tennant creek, Northern Territory

Sample	Distance transported (m)	Fe g/kg	Co mg/kg	Cu/Au mg/kg	CN mg/kg Free	Chloride g/kg
Tailings eroded	0	120	70	310/0.2	3.5	2
White evaporate	10	58	57	95/13	9.0	50
Blue evaporate	10	49	47	77/81	6.5	53
Green evaporate	10	190	470	23,000/4	1.0	93
White evaporate	150	26	34	1600/1	70	230
White evaporate (above bund)	200	28	43	480/1	9.5	78

Table 3. Comparison of metal, free cyanide and chloride concentrations downstream from old tailings runoff at Tennant Creek, Northern Territory

Sample	Co mg/kg	Cu mg/kg	Cyanide free mg/kg	Chloride g/kg
<u>Collected after overflow</u>	7.5	7	< 1	89
300m below road	0.1	0.1	< 1	.12
Background				
<u>Collected 1 year after overflow</u>	0.3	0.02	< 1	.46
300m below road				

conditions is the migration from old gold mine tailings following an uncommon rainfall event at an arid zone location near Tennant Creek, Northern Territory. The migration of metals from the tailings was initially associated with residual free cyanide trapped in the 40 year old tailings (Table 2) but further downstream became dominated by chloride from the high background level in soil (Table 3). Surface transport of metals from tailings associated with cyanide and chloride gave mobility to cobalt, copper and gold. The

constituents in the runoff were found to be water extractable. Rainfall gave rise to vertical movement of salts in soil profile and clearly no organic matter present to retain metals. Thus the limited retention of contaminants in soil occurred as organic carbon in soil is negligible.

**Complexing of aluminium and minimisation of**

**water toxicity to fish**

Waters flowing to the Magela Creek floodplain are known to be acidic when associated with the first flush of the annual monsoonal wet season. A long-standing question had been: why did fish fingerlings survive in water having pH 3.7, 20 mg/L of labile aluminium and 200 mg/L sulfate. The effect of dissolved organic carbon and silica was found to ameliorate the toxicity of aluminium to local fish and explained why fish were protected from high aluminium concentration in water.

**Conclusion**

Sulfate is a dominant anionic form (anion) at many mine sites. Chloride may also be dominant. Discrete processes may occur with trace elements being dependent on their presence and physico-chemical conditions. When the discrete chemical species are conservative they may be used as discrete environmental markers (simple or complex ions) and used to trace pollution sources.

## Peptide-Cleaving Catalyst as a New Paradigm in Drug Discovery

**Prof. Junghun Suh**

*Seoul National University, Korea*

*E-mail: jhsuh@snu.ac.kr*

We have proposed target-selective peptide-cleaving catalysts as a new paradigm in drug design. We have employed the Co(III) complexes of cyclen as the catalytic center for the peptide cleavage. We have reported the first peptide-cleaving catalysts selective for target proteins by designing synthetic catalysts that selectively cleaved myoglobin. Since the catalysts had molecular weights unsuitable for a drug, we searched for peptide-cleaving catalysts with smaller sizes selective for a disease-related protein. By using chemical libraries, the first peptide-cleaving catalyst selective for a disease-related protein was obtained by using peptide deformylase, an important target in designing new antibiotics. By using chemical libraries, peptide-cleaving catalysts selective for angiotensin I (a decapeptide) and angiotensin II (an octapeptide) were obtained. The angiotensins, which are important targets for antihypertensive drugs, were cleaved by oxidative decarboxylation of the N-terminal Asp residue instead of the hydrolysis of the peptide backbone. A peptide-cleaving catalyst has been also discovered for oxidative decarboxylation of melain-concentrating hormone, an important target for drugs curing obesity. Recently, we were able to design cleavage agents for the soluble oligomers of amyloid b42 peptide, the main neurotoxic material responsible for Alzheimer's Disease.



Prof. Junghun Suh, FACS President, is receiving a souvenir from the Kuwait Chemical Society



EXCO Members with the representatives of Kuwait Chemical Society at Kuwait Institute for Scientific Research



EXCO Members at Kuwait Institute for Scientific Research



# 2006 Activities and 2007 President Profiles of the Member Societies

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## Brunei Darussalam Institute of Chemistry

### Introduction

The Brunei Darussalam Institute of Chemistry (BIC), formerly known as the Brunei Darussalam Chemical Society (BDCS), is a professional body of members from various profession related to chemistry. Since its formation on 18th December 1977, many professional meetings on various areas of chemistry and on topics of public concern were organized and conducted. Brunei Shell Petroleum Co. Sdn. Bhd. has been our generous sponsor in many professional activities in recognition of the Institute's service to the public. The fundamental function of the Institute is to bring the general public and chemists together for the betterment of chemistry. The Institute facilitates the exchange of knowledge in chemistry and provides the opportunity for chemists to meet and communicate with each other.

### Activities

Some of the main activities include:

- BIC holds regular professional meetings, lectures on wide range of topics. Speakers who are experts in their field from abroad, mainly from ASEAN countries, are invited to deliver lectures in their professional meetings. One of the main objectives of these lectures is to bring public awareness to the importance of chemistry in their life.

Recent public lectures include "The importance of minerals" by Dr. Franz Wimmer and "The role of electrochemistry in protecting the environment" by Dr. Jose H. Santos. Both speakers are lecturers from the Department of Chemistry, Universiti Brunei Darussalam.

BIC also Participate in the Science and Technology Week (6 - 10 June 2006) organized by the Faculty of Science, Univeristi Brunei

Darussalam. A poster of BIC and photos on BIC activities were on display for BIC promotion. Bookmarks on environmental pollutions and miniature periodic table were given as gifts for the on site new members.

- BIC also helps secondary school teachers who are members with their activities in order to encourage their students to appreciate chemistry.

A chemistry essay writing competition was organised by BIC and the competition was opened to all upper secondary school students entitled "The health and social effects of smoking". Winners for the first, second and third places and ten consolation prizes were selected and a prize presentation for the winners was held on 28<sup>th</sup> May 2006.

### Patron

Yang Behormat Pehin Orang Kaya Laila Wijaya Dato  
Hj. Abd. Aziz Umar  
Former Minister of Education  
Brunei Darussalam

### Executive Committee Members

#### 2005/2007

##### President

Dr. Hj. Ibrahim Hj. Abd. Rahman  
(Dep. of Chem., Universiti Brunei Darussalam)

##### Vice-President

Dr. Linda Lim (Dep. of Chem., Universiti Brunei Darussalam)

##### Past-President

Hj. Abd. Majid Hj. Abd. Rahman  
(State Laboratory RIPAS Hospital)

#### Honorary Secretary

Dr. Lim Lee Hoon  
(Dep. of Chem., Universiti Brunei Darussalam)

#### Asst. Hon. Secretary

Dr Chan Chin Mei  
(Dep. of Chem., Universiti Brunei Darussalam)

#### Honorary Treasurer

Mr. Lim Swee Chin  
(Laboratory of Scientific Services, Ministry of Health)

#### Asst. Hon. Treasurer

Ms. Lim Chian Lee (Sayyidina Husain Secondary School,  
Ministry of Education)

#### Committee Members

Dr. Jose H. Santos  
(Dep. of Chem., Universiti Brunei Darussalam)

Mr. Mohammad Jamil Dato Hj. Abd. Hamid  
(Dep. of Chem., Universiti Brunei Darussalam)  
Ms. Malai Haniti bte Sheikh Abd Hamid  
(Dep. of Chem., Universiti Brunei Darussalam)

Ms. See Leng Yee  
(Berakas Sixth Form Centre Ministry of Education)

#### Membership Officer

Ms. Hartini Hj Mohd Yasin  
(Dep. of Chem., Universiti Brunei Darussalam)

### Profile of the 2007 President, Brunei Darussalam Institute of Chemistry



Dr. Hj. Ibrahim Hj. Abd.  
Rahman

The president of Brunei Darussalam Institute of Chemistry is elected every two years and there is no limit on the number of time the president can be elected. The president must be a citizen of Brunei Darussalam and must be a holder of a degree in chemistry or closely related to chemistry.

The current president post will expire in May 2007.

#### President

Dr. Hj. Ibrahim Hj. Abd. Rahman  
Deputy Dean, Faculty of Science  
Universiti Brunei Darussalam

### Correspondence

#### Honorary Secretary

Brunei Darussalam Institute of Chemistry  
P.O.Box 2591  
Bandar Seri Begawan  
Brunei Darussalam BS8673

#### Dr. Lim Lee Hoon

Brunei Darussalam Institute of Chemistry  
c/o Chemistry Department  
Universiti Brunei Darussalam  
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Brunei Darussalam

e-mail: leehoon@fos.ubd.edu.bn  
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Fax: +673-2-249502

## Chinese Chemical Society

Since it was founded in 1932, the Chinese Chemical Society has been one of the active institutions for science and technology development in China. The CCS has never stop to serve as the center of chemical science and technology.

In 2006, the CCS initiated a lot of works in organizing academic activities, publishing academic publications, popularizing chemical knowledge to the public, and strengthening the cooperation between foreign chemical societies and international organizations.

### 1. The Chinese Chemical Society holds about 20 national symposia and seminars belonging to different chemical fields every year. More than 10 thousands chemists have attended these activities.

The 25<sup>th</sup> CCS Congress has been held in 2006.

- Theme of the Congress: *Chemistry and Society-Status and Duties of Chemistry in Society Sustainable Developments*

- Sessions of the Congress

- Green Chemistry
- Environmental Chemistry
- Applied Chemistry
- Chemistry in Life Science
- Organic Chemistry and Recycle Economy
- New Energy resources and Energy Chemistry
- Nanochemistry
- Supramolecular Assembling and Molecular Electronics
- The Frontier of Polymer Science
- Theoretical Chemistry and Computation Chemistry
- Solid Inorganic Chemistry
- Analytical Chemistry
- Photochemistry
- Organic Photoelectron and Information Materials
- Chemistry of Natural Products and Pharmaceutical Chemistry
- Colloid Chemistry and Interfacial Chemistry

- Chemistry in Public Safety
- Chemistry in National Defense

There are about 2000 participants attending the conference, including CAS members and CAE members. American Chemical Society, Royal Society of Chemistry and Japanese Chemical Society delegations attended the Conference.

There are 20 national scientific meetings held in 2006, they cover most hot areas in chemistry.

There are several bilateral conferences and international symposium have been held, they are

- 4<sup>th</sup> Taiwan-Mainland Conference on Analytical Chemistry
- 2006 Taiwan-Mainland Conference on Polymer
- 4<sup>th</sup> East-Asia polymer conference
- 3<sup>rd</sup> Shanghai International Symposium on Analytical Chemistry (Analytic China 2006)

### 2. Until 2006, there are 21 journals published by CCS pertinent to chemistry in different disciplines in China.

All of these journals basically reflect the present status and the academic level of chemical research and education in China. 11 of them are collected by ISI. According to the agreement, Elsevier will be responsible for the publication and distribution of *Chinese Chemical Letters* from 2007.

### 3. CCS and RSC signed the agreement of cooperation

Agreement for the establish a continuous communication and exchange in the field of chemistry and related areas of knowledge for the benefit of both the Chinese and United Kingdom chemical communities.

- Set the CCS/RSC joint member group.
- Set the CCS/RSC awards for young scientists in China.

### 4. Project of scientific development studies in China.

The CCS organized the scientists to study on the development of chemical Disciplines in China. It

clearly indicates the latest research in China and worldwide, and research trends in the future.

**The CCS will continue participating actively in the programs of IUPAC and FACS, and will also endeavor to be a leader in the global of chemistry.**

### Profile of the 2007 President, Chinese Chemical Society



Prof. Bai Chunli

Chunli Bai is Executive Vice-president of the Chinese Academy of Sciences (CAS), Director of Division of Chemistry and member of Executive Committee of the Presidium. He graduated from the Department of Chemistry, Peking University in 1978 and received his MS and Ph.D. degrees from CAS Institute of Chemistry in 1981 and 1985, respectively. During 1985-1987, he was at Caltech, the US for advanced study, conducting research work in the field of physical chemistry as a post-doctorate associate and visiting scholar. After his return home in 1987, he continued his research at CAS Institute of Chemistry. From Oct. 1991 to Apr. 1992, he was a visiting professor at Tohoku University in Japan.

His research areas involve the structure and properties of polymer catalysts, X-ray crystallography of organic compounds, molecular mechanics and EXAFS research on electro-conducting polymers. In the mid-1980s, he shifted his research orientation to the field of scanning tunneling microscopy, and molecular nanotechnology.

Prof. Bai has won 10 national, CAS-awarded or ministerial prizes. He has received "International Medal" by the Society of Chemical Industry (London-based), TWAS 2002 Medal Lecture in Chemical Sciences, HLHL Chemistry Prize.

Because of his outstanding achievements and meritorious service, Bai was elected a member of CAS and a fellow of the Academy of Sciences for the Developing World (TWAS) in 1997, a foreign member of the Mongolian National Academy of Sciences in 2005, and a foreign associate of the US National Academy of Sciences in 2006. Prof. Bai now serves as the chief scientist for the National Steering Committee for Nanoscience and Related Technology and Director of China National Center for Nano science and technology. In addition, he is the president of the Graduate School of CAS.

In his social activities, he is vice-president of the China Association for Science and Technology, president of Chinese Chemical Society, Bureau member of Executive Committee of IUPAC.

## Hong Kong Chemical Society

1. The main aim of the Hong Kong Chemical Society (HKCS) is to promote Chemical Science to the general public of Hong Kong Special Administrative Region (SAR), China. The two major activities organized by HKCS in 2005 – 2006 were the 11<sup>th</sup> HK Chemistry Olympiad for Secondary Schools and the 17<sup>th</sup> HK Chemistry Olympiad for Tertiary Institutes. The former event was co-organized with the Hong Kong Association for Science and Mathematics Education (HKASME) and the Royal Chemical Society, UK. The latter event was co-organized with the Royal Chemical Society, UK.
2. The Chemistry Olympiad for Secondary Schools (HKChO) activity is a project-based competition for secondary school students (age 12 – 19) in Hong Kong. The theme of the 11<sup>th</sup> HKChO was “Green Chemistry”. Secondary school students are required to form teams of 3 to 6 individuals to work on a small research project that they have proposed.
3. There were altogether 64 teams of students from 50 secondary schools participated in the competition. Twelve teams were selected in the first round and six finalist teams were then picked for poster and oral presentation on 25 March 2006. The champion was from the St. Paul’s Convent School and the title of their project was “Green Saviour – Chitin & Chitosan”.
4. The 12<sup>th</sup> HK Chemistry Olympiad for Secondary Schools activity has just commenced in October 2006. The theme is “Chemistry in Commercial Products”. We are expecting more student teams to participate in the event this year.
5. The Chemistry Olympiad for Tertiary Institutes activity runs in a slightly different way compared to the Chemistry Olympiad activity for Secondary Schools. There are six research universities in Hong Kong with chemistry departments. Each year, each university will select three chemistry-major undergraduate students to form a team to participate in the Chemistry Olympiad competition. Each team will be given a specific topic, relating to a common central theme, and students have to come up with a 15-minutes presentation on the topic within 24 hours.
6. The central theme of the 17<sup>th</sup> Chemistry Olympiad for Tertiary Institutes was “Green Chemistry”. The participating teams included: The University of Hong Kong, the Chinese University of Hong Kong, the Hong Kong University of Science & Technology, the City University of Hong Kong, the Polytechnic University of Hong Kong and the Baptist University of Hong Kong. The champion was the Hong Kong University of Science & Technology and their presentation was “Green Chemistry in Laundry and Cleaning”.

## Institut Kimia Malaysia

*A professional organization established to regulate and represent the profession of chemistry in Malaysia  
(Incorporated under the CHEMISTS ACT 1975)*

### INTRODUCTION

The Malaysian Institute of Chemistry or Institut Kimia Malaysia (IKM) was inaugurated as a professional society on 8.4.1967 and registered under the Societies Act 1966 on 13.10.1967. It was subsequently incorporated as a professional body under the Chemists Act 1975 on 1.11.1977.

### FUNCTIONS OF THE INSTITUTE

The functions of the Institute are :

1. To determine the qualifications of persons for admission as members.
2. To provide training, education and examination by the Institute for persons intending to practice the profession of chemistry in Malaysia.
3. To regulate the practice, by members of the profession of chemistry in Malaysia.
4. To promote the interests of the profession of chemistry in Malaysia.
5. To render such pecuniary or other assistance to members with a view to protecting or promoting their welfare.

### MEMBERSHIP

Membership of the Institute is open to all persons with a recognized pass or honours degree in chemistry or equivalent academic qualification in chemistry or a specialized discipline associated with chemistry and the requisite practical experience.

Membership is of three grades, namely fellowship, associateship and licentiateship and is based on practical experience and contributions to chemistry as follows:

- Fellows - not less than 10 years of practical experience and shall have made a substantial contribution to chemistry.
- Associates - not less than ten years practical

experience for a pass degree or not less than two years for an honours degree.

- Licentiates - not less than two years practical experience for a pass degree or not less than one year for an honours degree.

Fellows, associates and licentiates are entitled to use the initials FMIC, AMIC or LMIC respectively after their names.

### SPECIFIC POWERS/PRIVILEGES

Under the Chemists Act 1975 only chemists registered with the Institute shall practice chemistry as a profession or issue test reports or certify the results of any chemical analysis.

### MANAGEMENT

The Institute is managed by a council which comprises the Director General of Chemistry as Registrar and 13 elected members who serve three year terms. The president, vice-president, secretary and treasurer are elected annually by the council from among its members.

### ACTIVITIES

The Institute carries out a range of professional, educational, social and promotional activities, including:

- Membership examination
- Chemical conferences including annual malaysian chemical conference, seminars, training courses, workshops and talks
- Factory visits
- Chemistry publications
- Social functions such as annual malam kimia
- Chemistry awards at professional, university and school levels, (through education fund)
- Travel grants and research fellowship (through

education fund)

- Benevolence (through benevolent fund)

The Institute recently organized the MCC2006 International Conference and Exhibition on Green Chemistry on 19 – 21 September 2006 at the Sunway Pyramid Convention Centre, Petaling Jaya, Malaysia. A report of the MCC2006 is attached.

Institut Kimia Malaysia will be organizing the 12<sup>th</sup> Asian Chemical Congress (12ACC) on 23-25 August 2007 at the Putra World Trade Centre, Kuala Lumpur, Malaysia under the auspices of the Federation of Asian Chemical Societies (FACS).

## PUBLICATIONS

The Institute produces a number of Chemistry publications, namely:

- Journal of the Malaysian Institute of Chemistry
- Berita Institut Kimia Malaysia
- Kimia Kini

## AFFILIATION

The Institute has linkages with national, regional and international organizations, namely:

- International Union of Pure and Applied Chemistry (IUPAC)
- Federation of Asian Chemical Societies (FACS)
- Confederation of Scientific and Technological Association in Malaysia (COSTAM)
- Balai Ikhtisas Malaysia (BIM) or Malaysian Professional Centre
- KISM Sdn Bhd

## AWARDS

The Institute makes a number of annual awards to recognize professional distinction, academic excellence and outstanding meritorious service. The awards are:

- IKM Gold Medals for excellence in chemical research and development and for distinctive contribution to the profession of chemistry in Malaysia
- Tan Sri Ong Kee Hui Postgraduate Chemistry Medal for best postgraduate thesis
- IKM Chemistry Medals for graduates with outstanding results in the bachelor of science

programmes in chemistry at local universities.

- IKM Merit Awards for meritorious performance in PMR, SPM and STPM examinations
- IKM Citation Awards for outstanding service to IKM

## COMMITTEES

The Institute has established committees to cater for specialised interests of its members. These are:

- Environment & Green Chemistry Section
- Analytical & Quality Assurance Section
- Oil & Fats Section
- Education & Community Section
- Polymer & Industry Section
- Bio-Organic Section

## SUBCOMMITTEES

The activities are carried out with the assistance of permanent / ad hoc subcommittees, such as:

- Examination Board
- Building and Finance Committee
- Professional Affairs Committee
- IKM Professional Centre Development Committee
- Malaysian Journal of Chemistry Editorial Board
- Chemical and Occupational Safety Committee
- Membership Admission Committee
- IKM Laboratory Excellence Awards Committee
- Investigation and Disciplinary Committees
- Publications Committee
- Malam Kimia Organising Committee
- MCC Steering Committee

## SECRETARIAT

A full time secretariat, headed by an Executive Director, is located in the Institute's own premises. For further information contact the Secretariat:

**WISMA I.K.M.**

**127B, Jalan Aminuddin Baki**

**Taman Tun Dr. Ismail**

**60000 Kuala Lumpur**

**Tel: 603-77283272**

**Fax: 603-77289909**

**E-mail: [ikmmy@pc.jaring.my](mailto:ikmmy@pc.jaring.my)**

**<http://www.ikm.org.my>**

## MCC 2006-INTERNATIONAL CONFERENCE AND EXHIBITION ON GREEN CHEMISTRY

IKM successfully organized an International Conference and Exhibition - MCC 2006 on Green Chemistry on 19 - 21 September 2006 at Sunway Pyramid Convention Centre, Petaling Jaya, Selangor, Malaysia.

This International Conference and Exhibition was supported by the Ministry of Science, Technology and Innovation, Malaysia, the Federation of Asian Chemical Societies (FACS) and the Organization for the Prohibition of Chemical Weapons based in the Netherlands.

Y.B. Dato' Kong Cho Ha, the Deputy Minister of Science, Technology and Innovation, Malaysia officiated at the Opening of the Conference on 19 September 2006 on behalf of the Minister of Science, Technology and Innovation, Malaysia.

Amongst the objectives of the Conference were to promote and update on the development in green and sustainable chemistry as well as to provide a platform for networking and exchange of knowledge and information between individuals and groups from the academia and industry, and between colleagues and partners from different geographical regions on the current status, achievements and progress in the science and technology of green chemistry.

The conference program included plenary and keynote lectures, oral papers and poster sessions. Eminent scientists and researchers, both from the industries and academia from overseas and local, delivered the plenary and keynote lectures, dedicated to topics related to the advances made in the chemistry and technology of green chemistry such as clean chemical technology, catalysis for green chemical processes, fuel cells/renewable fuels and green energy,

natural and green polymers, green chemistry education, clean development mechanism, biodegradation and bioremediation/recycling of waste, frontiers of green chemistry/solutions to green market, ionic liquids and green solvents, and implementation of green and sustainable chemistry by industry.

There were 32 sessions in all. A total of 130 papers comprising 4 plenary papers, 21 keynote papers, 30 invited papers, 55 technical papers and 20 posters were presented in 3 concurrent sessions throughout the 3-day conference.

The plenary lectures presented were:

Global Information Commons for Green Chemistry  
*by Prof. Shuichi Iwata (Japan)*

Biomimetic Nanotechnology - a Bio-Nano Convergence  
*by Dr. Terence Turney (Australia)*

Building up Sustainable Businesses at DSM  
*by Dr. Joseph Put (Netherlands)*

Petro- vs. Bio-based Polymers  
*by Prof. Piet J. Lemstra (Netherlands)*

About 210 participants attended the Conference with close to 80 of them coming from 23 countries covering mainly Asia and some from Europe and Africa. The rest were Malaysians.

An Exhibition which was opened to the public was held during the Conference to show-case 'state-of-the-art' analytical instrumentation and testing equipment, specialty chemicals and auxiliary services and research activities. 28 companies and organizations participated in the Exhibition.

A Conference Banquet was held on 20 September 2006 at the West Lake Garden Chinese Restaurant, Sunway Lagoon Resort Hotel for all participants of the Conference.



## Profile of the 2007 President, Institut Kimia Malaysia (Malaysian Institute of Chemistry)



Dr. C. C. HO

### PRESENT CORRESPONDING ADDRESS :

Institute Kimia Malaysia  
Wisma IKM  
127 B Jalan Aminuddin Baki  
Taman Tun Dr, Ismail  
60000 Kuala Lumpur  
Malaysia

Tel : +60-3-77283272  
FAX : +60-377289909  
e-mail : cchoho2001@yahoo.com

### EDUCATION BACKGROUND :

University of Malaya : B.Sc (Hons), Chemistry (‘65-‘68)  
University of Bristol, England :  
M.Sc With Commendation in Colloid and Surface Chemistry (‘68-‘69)  
University of Bristol, England : Ph.D., Physical Chemistry (‘70-‘72)

### HONOURS :

DSc, University of Bristol, England (1998)  
Fellow, Academy of Sciences Malaysia (1998)  
Fellow, Royal Society of Chemistry, United Kingdom (1990)  
Fellow, Malaysian Institute of Chemistry (1989)  
Fellow, Malaysian Oil Scientists' and Technologists' Association (1998)

### AWARDS :

4<sup>th</sup> Malaysia Toray Science Foundation 1997 Science & Technology Award (1997)  
Rotary Research Foundation Gold Medal 1998/99 (1999)  
Malaysian Institute of Chemistry Gold Medal 1999 (1999)  
National Science Award 1999 (by Malaysian Government) (1999)

### MEMBERSHIP OF PROFESSIONAL BODIES :

Associate member, Malaysian Institute of Chemistry (1973 - 1988)  
Member, International Association of Colloid and Interface Scientists (1989 - 1999)  
Chartered Chemist, United Kingdom (1990 - present)  
Chartered Scientist, United Kingdom (2004 – present )

### POSITIONS HELD :

Dean, Faculty of Applied Sciences, Asian Institute of Medicine Science and Technology (AIMST) (2002 - 2006)  
Professor, Department of Materials Science, AIMST (2002 - 2006)  
R&D Director, Omnigrace (Thailand) Ltd, Thailand (1999 - 2002)  
Professor, Department of Chemistry, University of Malaya (1992-1999)  
Head, Department of Chemistry, University of Malaya (1994-1996)  
Associate Professor, University of Malaya (RRIM) (1982-1992)

Lecturer, University of Malaya (1974-1981)  
Research Officer, Rubber Research Institute Malaysia (RRIM) (1972-1974)

### PROFESSIONAL ACTIVITIES :

Organization	Position held
Malaysian Institute of Chemistry:	President (2001- present)
Academy of Sciences Malaysia:	Member of Council (1999 - present)
Malaysian Standards and Accreditation Council (MSDAM) :	Council member (2003 - present)
Malaysia Registrar of Certificated Auditors (MRCA) :	Council member (2001- present)
Malaysian Rubber Board (LGM) :	Assessor Panel R&D Projects (2000 - present)
Pacific Polymer Federation :	Member of Council (1994 -present)
EURASIA Conference on Chemical Sciences Series :	Member, International Advisory Board (2003 - present )

### PUBLICATION AND PRESENTATION AT SCIENTIFIC CONFERENCES

Published more than 80 papers in refereed International journals.  
Presented more than 70 scientific papers (including INVITED papers) at national and international conferences.

### FIELD OF RESEARCH :

**Colloid and Surface Chemistry** of dispersed systems, in particular

- (1) Chemistry and technology of natural rubber latex
- (2) Synthesis of novel polymers by emulsion polymerisation
- (3) Treatment of waste-water discharge from factories and palm oil mills
- (4) Palm oil emulsions and non-food applications
- (5) Reclamation of tin tailings slurry (ex-mining ponds)
- (6) Solution properties of surfactants
- (7) Latex film formation mechanism of rubber latex systems

### Materials Science

- (1) Synthesis, characterization and applications of composite materials
- (2) Imaging techniques for morphological studies of surfaces
- (3) Physical and chemical properties of novel materials

## Korean Chemical Society

The Korean Chemical Society (KCS) is one of the largest and most active professional societies in Korea. Since its foundation in 1946, the KCS has been one of the stalwart institutions for the development of the Republic of Korea. The Society consists of the 13 acting committees, the 12 academic divisions, the 4 editorial boards, and the 14 regional chapters and sections. And, more than 5,500 members of the KCS are actively working in all fields of chemistry to promote chemistry in Korea and to contribute to the development of Korea with the slogan, “*Green Chemistry, Clean World*”.

The Korean Chemical Society regularly publishes two professional journals and two chemistry related magazines as follows:

- *Bulletin of the Korean Chemical Society* (monthly journal, indexed by SCI, publishes over 400 papers a year)
- *The Journal of the Korean Chemical Society* (bimonthly journal)

- *Chemical Education* (quarterly magazine for teachers of secondary/high schools)
- *ChemWorld* (monthly magazine, newsletter of the KCS)

The KCS strives for globalization of the Korean chemical circle through various academic activities and active participation in international affairs. The KCS biannually organizes the KCS National Meeting, which usually collects more than 2000 presentations. The KCS also works with other international chemical societies to hold joint symposia and supports meetings organized by divisions, regional chapters and sections of the KCS.

This year, the KCS celebrates the 60<sup>th</sup> anniversary. In the Korean tradition, the 60<sup>th</sup> anniversary means a second birthday, and a big birthday party for the KCS was held. In addition, the Korean government declared that the year 2006 would be the “Year of Chemistry”. A variety of programs are planned all the year round to promote chemical science and technology in Korea



(Left) Chairman of the 38<sup>th</sup> IChO (Prof. Dai Woon Lee) delivering a closing address and (right) one of the Korean representatives (Hwan Bae) who won the first-place award in the individual contest at the 38<sup>th</sup> IChO



A photo of participants taken after the opening ceremony of the 19<sup>th</sup> ICCE



Snapshots of Chemical shows and do-it-yourself expositions

aiming for better understanding of chemistry by ordinary citizens, particularly young generation. Indeed, the year 2006 will be the year of quantum leap for chemistry in Korea.

On March 7, 2006, the initiation ceremony for the "Year of Chemistry" was held to lead off this year's events. The annual KCS congress in April marked the 60<sup>th</sup> anniversary meeting, and a large number of eminent Korean chemists, from domestic and abroad, assembled

in all disciplines of chemistry for lectures of the highest academic standards. The fall meeting in October also featured talks by many prominent speakers. There were also several high caliber international events: the 38<sup>th</sup> International Chemistry Olympiad (IChO 2006) in July, the 19<sup>th</sup> International Conference on Chemical Education (ICCE) in August, and the 18<sup>th</sup> International Symposium on Chirality in June. In particular, the IChO 2006 was the biggest event ever organized in the history of the KCS.

## Profile of the 2007 President, the Korean Chemical Society



Prof. Jin Soon Cha

### Education background and Professional Activities:

Sogang University: B.Sc, M.Sc, Ph.D, Chemistry  
Professor: Yeungnam Univ. Dept. Chem. (1980-present)  
Research Associate: Purdue Univ.(H. C. Brown) (1982-4,1989-1990)  
Visiting Professor: Hokkaido Univ. (A. Suzuki) (1986)  
Visiting Professor: Wales Univ. (A. Pelter) (1996)  
Vice President of General Affairs of KCS (2003)  
Dean of College of Sciences (2004-2006)

### Objectives of Korean Chemical Society (KCS) in 2007

With the theme, 'Be Partner with Chemistry, For the Future! To the World!', the KCS will conduct the following objectives with the slogans, 'The Leading, The Approaching, The Caring KCS' in 2007.

#### A. The Leading KCS

1. Administration of KCS related to the policy
2. Programs for the improvement of chemical education
3. Starting new era of the KCS Registered Office at Anam-Dong
4. Proposal for the accreditation board for chemistry
5. Promote KCS extensively
6. Strengthen the KCS committees
7. Create an ad hoc committee and reinforce it
8. Solving the pending problems of KCS (questionnaire survey)

#### B. The Approaching KCS

1. Opening venue for communication between students and CEO
2. Giving of appreciation award to students who graduated summa cum laude in chemistry and related fields
3. Promoting the efficiency of KCS services
4. Efficient management of allocated budget

#### C. The Caring KCS

1. Reinforce support for regional academic activities
2. Propose the opinion of KCS members to government authorities
3. Solving the problems of primary and secondary educational laboratories and education

The  
**Korean Chemical Society**  
34-1, 5-ga, Anam-dong,  
Seongbuk-gu,  
Seoul136-075, Korea  
<http://www.kcsnet.or.kr>  
[kcschem@kcsnet.or.kr](mailto:kcschem@kcsnet.or.kr)  
Tel) +82-2-953-2095  
Fax) +82-2-953-2093

## New Zealand Institute of Chemistry

The NZIC represents some 1000 members involved in the profession of chemistry. Members participate in the study, practice, teaching, promotion and management of chemistry.

The NZIC was founded in 1931. It is comprised of six branches and a number of specialist groups. The governing council comprises a delegate from each Branch Committee together with an elected President, first and second Vice Presidents, General Secretary and General Treasurer. Members of Council are elected annually at the AGM, in recent years the First Vice-President has been elected unopposed to the Presidency and the Second Vice-President has been elected unopposed to the First Vice-Presidency.

Members of the NZIC can also elect to belong to one or more Specialist Groups within the NZIC. There are 10 Specialist Groups registered, of varying activity. Some are functional only during national Conferences, while others have active year-long programmes, including their own conferences, and recruit non-NZIC members as affiliates.

### Conferences

#### 1. *New Zealand Institute Of Chemistry Conference 2006*

**The Royal Lakeside Novotel, Rotorua**

**2-6 December 2006**

<http://www.massey.ac.nz/~nzic/>

*Invited Speakers:*

Inorganic-Organometallic Chemistry:

Warren Roper (Auckland)

Organic-Medicinal Chemistry:

David Mcmillan (Caltech)

Materials Chemistry: Mark Barteau (Delaware)

Physical and Theoretical Chemistry:

Richard Zare (Stanford)

Biochemistry and Molecular Biology:

Harry Gray (Caltech)

*Registration:* now open

#### 2. *12<sup>th</sup> International Symposium on Marine Natural Products*

**Queenstown, New Zealand, 4-9 February 2007**

<http://www.manapro12.co.nz>

**E-mail:** [b.copp@auckland.ac.nz](mailto:b.copp@auckland.ac.nz)

#### 3. *IC07 Inorganic Chemistry Conference*

**Tasmania, Australia, 4-8 February 2007**

<http://www.ic07.com.au>

IC07 is an international meeting continuing a long tradition of inorganic chemistry conferences held jointly by the Inorganic Division of the Royal Australian Chemical Institute and the Inorganic and Organometallic Specialist Group of the New Zealand Institute of Chemistry. The conference will focus on all of the important core areas of inorganic chemistry, including the interfaces with other disciplines and will highlight new areas for our discipline.

Further details available at the conference website.

Prof. Allan Canty (Chair IC007)

Prof. Richard Keene (Chair RACI Inorganic Division)

#### 4. *Australian Colloid and Interface Symposium 2007*

**Sydney, Australia, 4-8 February 2007**

<http://www.colloid-oz.org.au>

**e-mail:** [acis@pco.com.au](mailto:acis@pco.com.au) (Dr. Erica Wanless)

ACIS 2007 is the international meeting of the RACI colloid and surface science division.

*Themes:*

- Spectroscopy and scattering in surface and colloid science (organisers: Jim McQuillan, NZIC & David Beattie)
- Pharmaceutical applications (organisers: Ben Boyd & Ian Larson)
- Hierarchical materials (organisers: Calum Drummond & Matt Trau)
- Surface forces, nanotribology and biological interactions (organisers: Roger Horn & Michelle Gee)
- Inorganic oxide surfaces (organisers: George Franks, Yang Gan & Jonas Addai-Mensah)
- Drops and Bubbles (organisers: Ray Dagastine &

Clive Prestidge)

-Frontiers of Colloid and Interface Science  
(organisers: Greg Warr, Rob Atkin & Shannon  
Notley)

### *5. Supramolecular Chemistry and Nanoscience - Towards Functional Nanostructures*

**St David St Lecture Theatre Complex, University  
of Otago, Dunedin**

**Saturday 3 March 2007**

**8.30 am - 11 pm (including conference dinner)**

Opening plenary lecture by University of Otago  
James and Jean Davis Prestige Visiting Fellow **Prof.  
Jean-Marie Lehn**

Nobel Laureate (1987), Director of the Institute of  
Science and Supramolecular Engineering (ISIS),  
University Louis Pasteur Strasbourg, France .

Closing plenary lecture **Prof. Paul T. Callaghan**

Alan MacDiarmid Prof. of Physical Sciences,  
School of Chemical and Physical Sciences, Victoria  
University of Wellington, New Zealand.

Session lecturers will comprise staff and students.  
For more information, please email Sally Brooker  
(conference chairperson) at: Sbrooker@alkali.otago.ac.nz.

If you are interested in attending this conference  
then please register your interest with us ASAP by  
emailing Theresa Renault at: trenault@chemistry.  
otago.ac.nz as this will greatly assist us (a) in keeping  
you informed of progress (via an email list), (b) in our  
selection of student and postdoctoral session lecturers  
and (c) in our planning. The second flyer will be  
available soon.

## Publications

### *1. Chemistry in New Zealand*

The New Zealand Institute of Chemistry publishes  
Chemistry in New Zealand. There are four issues  
produced each year.

### *2. Chemistry in New Zealand Online*

Chemistry in New Zealand (CiNZ) is the official  
professional journal of the NZIC. The September 2005  
edition is now available online.

### *3. Chemistry Processes in New Zealand*

Chemical Processes in New Zealand is now  
available online for downloading. This second edition  
(1998) of our publication Chemical Processes in New

Zealand is now out of print, but is still the most  
comprehensive account of the practice of chemistry in  
New Zealand. The book contains 17 sections with self-  
explanatory headings, and various numbers of articles  
(101 in all) under each heading.

### *4. New Zealand is Different*

205 x 275 mm soft bound.

320 pages plus eight pages of colour plates.

ISBN 09583706-7-2

New Zealand orders \$30.00 plus \$5.00 p & p

Overseas orders NZD55.00

To purchase '*New Zealand is Different*' contact the  
NZIC office.

Why did New Zealand Wool cargoes spontaneously  
ignite during transit to overseas markets? What caused  
the mysterious disease that devastated livestock on  
central North Island farms? Why were ceramics made  
from Northland clays so prone to crazing and  
chattering? How could the titaniferous North Island  
ironsands be smelted to make steel? Why were early  
harvests from Lake Grassmere solar saltworks so  
poor?

Too often the answers to questions like these were  
sought from overseas experts who came, proffered  
their advice, collected their fees and departed, leaving  
New Zealanders to discover the real solutions.

Eventually local scientists and engineers found  
ways to counter problems whose roots lay in New  
Zealand's distinctive geology and geography. In doing  
so, they also began to make world-class contributions  
to fundamental and applied science - for example: the  
characterisation of cytokinins (plant growth hormones)  
and the development of atomic absorption  
spectroscopy for trace-element analysis.

New Zealand has also led the world in  
technological advances such as using cyanidation for  
gold extraction, converting natural gas to petrol, and  
mechanising cheese production.

The twenty-six essays in *New Zealand is Different* are  
a testament to the dedication and skill of New Zealand  
chemists and chemical engineers as well as to the  
effectiveness of government research establishments.

More importantly, this volume conveys something  
of the human activity behind the achievements, since  
most of the authors were personally involved in the

events they describe.

*New Zealand is Different* is a unique historical and technical account which will appeal not only to general and scientific readers, but also proved a resource for school and university students interested in the making of a nation.

### Profile of the 2007 President, New Zealand Institute of Chemistry



Dr. Jan Wikaira

In 2007 Jan Wikaira will become the President of the New Zealand Institute of Chemistry.

Jan regards herself as an old(er) person but a young scientist. She started university well into adulthood but would hesitate to call herself a "mature" student. Jan did not complete high school, leaving at sixteen, and becoming a primary school teacher. At twenty-two she was the Senior Mistress of a very large school. She later became a secondary school teacher specialising in maths, science and senior biology. Jan's MSc investigated the "Renal Hypothesis" using mass spectrometry to establish morphine levels in patients in advanced renal failure. A scholarship allowed her to proceed to Ph.D. studies, under the supervision of Professor Vickie McKee, at Canterbury University and Queens University, Belfast, N Ireland. She synthesized and characterised large macrocycles coordinating four metals. During this time Jan was secretary of AsCA'95, which was organised from New Zealand but held in Bangkok. On graduating in 1997 Jan spent almost two years as a postdoctoral fellow at Brown University, Providence, USA. Since 1999 Jan has been in the chemistry department at Canterbury University where she lectures, is mentor to the first year students and manages the Xray crystallography laboratory. In 2005 she was awarded a Canterbury University Excellence in Teaching Award. Her interests continue to be synthetic inorganic chemistry and small molecule crystallography but increasingly she has become involved in wood technology research. In this work crystallographic techniques are used to investigate properties, particularly the tensile strength, of timber.

Jan became involved with the NZIC as a student spending five years as secretary of the Canterbury branch. Since 1999 Jan has been a member of the committee of the Canterbury branch of NZIC, most of this time as branch chair. In 2001 she has become a member of the NZIC council. Jan feels that the NZIC is in good heart and is looking to the future with optimism. She is delighted that the Education specialist group has been revived and hopes that the NZIC will convince more teachers of chemistry to become involved in the institute's activities

## Royal Australian Chemical Institute

**The Royal Australian Chemical Institute Incorporated (RACI)** was founded in 1917 as both the qualifying body in Australia for professional chemists and a learned society promoting the science and practice of chemistry in all its Branches (region based) and Divisions (discipline based). The RACI has approximately 6000 members and is an active organization with many events, seminars and conferences being held throughout 2006.

The Divisions consist of Analytical Chemistry, Biomolecular Chemistry, Cereal Chemistry, Chemical Education, Colloid and Surface Science, Electrochemistry, Environment, Industrial Chemistry, Inorganic Chemistry, Materials, Organic Chemistry Physical Chemistry and Polymer. They arrange national conferences in their own fields of interest. Two of the major conferences held in 2006 are as follows.

**INTERACT 2006** was held in Perth from 24-28 September 2006. The Clean Air Society of Australia and New Zealand was invited to join the RACI Divisions of Analytical Chemistry, Environmental Chemistry and Electrochemistry and the Australasian Society of Ecotoxicology in organising this prestigious international conference. World renowned keynote speakers set a powerful framework to work within in identifying current trends and emerging issues in the scientific field. The aim of the conference was to build knowledge, networks and participation in the advancement of science.

**Drug Design Amongst the Vines** 3-7 December 2006 is being hosted by the RACI Biomolecular Chemistry Division. The scientific program will cover aspects of drugs acting on G-protein coupled receptors, carbohydrate chemistry, antibacterials, drug design-ADMET ox, technology platforms for drug discovery, ion channels, drug delivery and bio-organic and medicinal chemistry Conferences.

The RACI holds a number of events throughout the

year that compliment its aim of promoting the science and practice of chemistry, for example:

- The 15<sup>th</sup> Professors and Heads of Chemistry Departments annual forum was held in Canberra. The themes for this conference included communicating chemistry to science and the community, the future of chemistry and research and funding directions within Australia.
- **“Introducing the News”**. The RACI and the Australian Science Media Centre held the event that explored the role of news in setting public and political agendas and gave useful tips on making news experience positive. The event gave scientists an insight into the way that news media works with speakers consisting of journalists, scientists and press officers.
- **RACI Annual Awards Dinner** – The RACI has a number of awards that are awarded on an annual basis. This year a special event is being held to celebrate the achievements in chemistry at an annual awards dinner.

The President, Dr. Greg Simpson and the Executive Director, Dr. Elizabeth Gibson attended the 11<sup>th</sup> IUPAC International Congress on Pesticide Chemistry 2006, Kobe Japan (IUPAC-ICPC). The RACI won the bid to hold the next congress the 12<sup>th</sup> IUPAC-ICPC in Melbourne 2010 and attended the 11<sup>th</sup> congress to advertise the location of the next congress.

Interaction with schools and the community in the area of chemistry education is an important role of the organisation. The RACI held a National Crystal growing competition and Titration competitions for schools. Also held in July 2006 was the Australian National Chemistry Quiz (ANCQ) which has up to 100,000 participants from 1,300 schools in Australia and neighboring countries.

The RACI appointed a Professional Development and

Education Officer in 2006 to take a lead role in the coordination of the delivery of educational programs to the community and professional development of members and teachers. Emphasis will also be placed on securing grants for delivery of education programs to schools and the community including careers advice to chemistry students.

RACI has in place a system of accreditation of university chemistry courses. All departments in tertiary institutions within Australia offering a course which could lead to a qualification satisfying the requirements for full membership (MRACI Chartered Chemist) of the Institute are encouraged to nominate such courses for accreditation (or re-accreditation) by the Institute. Graduates of courses granted accreditation are eligible for full membership once they have obtained the required professional experience (currently three years) but are immediately eligible for graduate membership (MRACI). The RACI

Qualifications committee conducted site visits of universities in New South Wales, Australian Capital Territory and Queensland.

'*Chemistry in Australia*' is the RACI magazine that is published on a monthly basis. It contains articles of a technical nature, information and news items about chemists, the chemical industry, science and industry policy, chemical industry awards and similar matters of interest to chemists. In 2006 a range of themes were covered from the energy debate; ethics in nanotechnology, business expenditure on research and development, steroid abuse in sport to crystal design. Other communication with members is *via* an electronic newsletter.

Further information about the RACI can be found on the web site [www.raci.org.au](http://www.raci.org.au).

## Profile of the 2007 President, Royal Australian Chemical Institute



Prof. Ian Rae

Prof. Ian Rae holds an Honorary Prof.ial Fellowship in the Department of History and Philosophy of Science at the University of Melbourne, Australia. He is a Fellow of the Australian Academy of Technological Sciences and Engineering and of The Royal Australian Chemical Institute, of which he is the current President Elect (President from 18 November 2006) and for which he writes a monthly column in *Chemistry in Australia*.

A chemist by training, Prof. Rae has extensive university experience, as dean of science at Monash and deputy vice-chancellor at Victoria University. His research experience has led to approximately 200 refereed publications in chemistry and history of science. He played a leading role in secondary school chemistry in Victoria during the 1980s and 1990s, assisting with curriculum development and acting as examiner for the Higher School Certificate and the Victorian Certificate of Education. He was also a member of the panel that reviewed the VCE in 1997.

He has been heavily involved in the formulation of policy regarding hazardous wastes, air pollution, Australia's National Pollutant Inventory, and control of ozone depleting substances. This advisory role has been exercised with his state government, the Commonwealth Department of the Environment and heritage, Australia's national council of environment ministers, Australia's Industrial Chemical Scheme (NICNAS), and the United Nations Environment Programme.

As a historian, his interests have been mainly in nineteenth century and twentieth century chemistry and chemical technology, publishing work on the Russian chemist Alexandr Borodin, discovery of spectroscopy by Stokes and Kirchhoff, formation of chemical societies in Australia and New Zealand, chemical education, wood distillation, national environment policy, the development of explosives and the mining and processing of arsenic in Australia.



# Minutes of the 49<sup>th</sup> EXCO Meeting

March 29-30, 2006, Nihon University (Funabashi Campus), Tokyo, Japan

## Present

### EXCO Members

Prof. Junghun Suh (Korea), President  
Prof. Ho Sy Thoang (Vietnam), Past President  
Datuk Dr. Ting-Kueh Soon (Malaysia), President-Elect  
Prof. Kyung Byung Yoon (Korea), Secretary General  
Dr. San H. Thang (Australia), Treasurer,  
Prof. Tashin J. Chow (Taiwan), Coordinator of Projects  
Prof. Doo Soo Chung (Korea), Chairman of Publications

### Observers

Prof. Barry Noller (Australia), Past Past President  
Prof. Masato Ito (Japan), ACEN, Co-director  
Prof. Hasuck Kim (Korea), AACN, Co-director  
Prof. Masaaki Tabata (Japan), ANAC, Director  
Prof. Takashi Tatsumi (Japan), GC, Co-director  
Prof. Yoshimasa Takahashi (Japan), ChIN, Co-director  
Dr. Syed Ghulam Musharraf (Pakistan), University of  
Karachi, Pakistan  
Dr. Sun Yeoul Lee (Korea), The Korean Chemical  
Society, Korea  
Dr. Teruto Ohta (Japan), Director, Chemical Society of  
Japan  
Prof. Akira Fujishima (Japan), President, Chemical  
Society of Japan

## Proposed Agenda

1. Opening Remarks
2. Apologies
3. Approval of the 48<sup>th</sup>-EXCO Meeting Minutes
4. Matters Arising from the 48<sup>th</sup>-EXCO Meeting
5. Report of the President
6. Report of the Past President
7. Report of the President-Elect
8. Report of the Secretary General
9. Report of the Treasurer
10. Report of the Coordinator of Projects
11. Report of the Publication Chairman
12. Progress Report of the Preparation for the 12<sup>th</sup> ACC &

14<sup>th</sup> GA

13. Report of the Preparation for the 13<sup>th</sup> ACC & 15<sup>th</sup> GA
14. Review of the 13<sup>th</sup> GA Minutes
15. Other Business

## 1. Opening Remarks

Prof. Junghun Suh, the FACS President, gave opening remarks. He thanked Prof. Fujishima, Dr. Teruto Ohta, and the CSJ staffs for the kind arrangement for the 49<sup>th</sup> EXCO meeting. He then introduced observers to the participant and welcomed all for attending the meeting.

On behalf of the CSJ, Prof. Akira Fujishima expressed his warm welcome to EXCO members and the observers as follows.

I would like to welcome all of you to our annual meeting. The Chemical Society of Japan joined FACS two years after it was started and has worked as one of its members ever since. From 1997 to 1999 Prof. Ohtaki served as the president of FACS and the Asian Chemical Congress was held in Hiroshima in 1997. For myself, it was a great honor for me to be awarded the FACS Foundation Lectureship Award in 1999.

The recent progress of Asian countries in scientific activity has been remarkable and the number of papers produced in this area is now making Asia another center of the world for scientific research together with North America and Europe. Last year our society made an agreement with the Chinese Chemical Society, Korean Chemical Society, and Chemical Research Society in India to make the Asian Chemical Editorial Society (ACES) and to launch a new journal called "Chemistry - An Asian Journal" with Wiley-VCH as the publisher. Publication of the new journal starts in July of this year and recently ACES welcomed two new members of The Chemical Society Located in Taipei and Singapore National Institute of Chemistry. I hope the exchange of Asian chemists

through the activity of FACS further enhances chemistry in Asian countries and that publication from this region will increase even more.

The annual meeting of our society holds some 6000 presentations and more than 9000 participants. I hope you enjoy your stay.”

## 2. Apologies

All EXCO Members were present.

## 3 and 4. Approval of the 48<sup>th</sup>-EXCO Meeting Minutes and Matters Arising from the 48<sup>th</sup>-EXCO Meeting

Prof. Kyung Byung Yoon, Secretary General of FACS, presented the draft of the Minutes of 48<sup>th</sup> EXCO Meeting, held in Korea University, Seoul, Korea, on August 25, 2005. The draft was approved and accepted after making some corrections and additions. Major corrections were:

- 1) “5<sup>th</sup>” in the following sentence was corrected to 24-25<sup>th</sup>.

### (3. Approval of the Minutes of the 47<sup>th</sup>-EXCO Meeting)

Prof. Huynh Van Trung, Past Secretary General of FACS, presented the draft of the Minutes of 47<sup>th</sup> EXCO Meeting, held in Ho Chi Minh City, Vietnam, on 5<sup>th</sup> April 2005.

- 2) “48<sup>th</sup>-EXCO” in the following was corrected to 47<sup>th</sup>-EXCO.

### (4. Matters Arising from the 48<sup>th</sup>-EXCO Meeting)

- 3) “---- Prof Biaoguo Lee is a Chinese.” was relocated to Matters Arising of the 49<sup>th</sup> Agenda.

(Item 5 in 4. Matters Arising from the 48<sup>th</sup>-EXCO Meeting) Dr. Soon asked to check the nationality of the Life Member of Biaoguo Lee (China or Philippines?) of the recipient of 1993 Award for Distinguished Contribution to Economic Development.---- Prof Biaoguo Lee is a Chinese.

- 4) “1990” in the following was corrected to 1996.

(Item 7 in 4. Matters Arising from the 48<sup>th</sup>-EXCO Meeting) It was pointed out that Certificates of Life Membership were issued before 1990. Prof. Noller agreed to send his own copy of the Certificate of the membership to the Secretary General.

- 5) “11-14 December 2007” and “10” in the following were corrected as Aug 23-25 and 5, respectively.

### (12. Report of the Preparation for 12<sup>th</sup> ACC & 14<sup>th</sup> GA)

Dr. Ting-Kueh Soon reported on the preparation of 12-ACC. The initial announcement on the leaflet for the 12-ACC will be sent. The conference will be opened from 11-14 December 2007. Monday 11 will be the welcome party on reception and registration. Actual Conference will be held from 12-14 December 2007. The venue will be intended in Kuala Lumpur, or New KL Convention Center. We have chemistry for development, environment and sustainability in Asia; plenary sessions contains of 10 Nobel Laureates and eminent scientists and scientific sessions. The symposium and sessions will be in different topics and subsections. The structure will be kept different with 11<sup>th</sup> ACC in Korea. The advertisement on Chemical instrumentation, petro-chemistry and the national oil chemical company will be involved. The organizing committee will be arranged after the conference in Seoul in 2005, and will be announced in website.

- 6) “1996” and “1995” were corrected to 1993 and 1992, respectively.

(Item 3 in 15. Other Business) Prof. Thoang indicated that the certificate of Fellow FACS was last presented in 1996. It was agreed to check the previous records on elected fellows including Past Presidents of FACS since 1995.

## 5. Report of the President (Prof. Junghun Suh)

- 1) He delivered a FACS Fellow Certificate to Princess Chulabhorn of Thailand. The ceremony was held on February 8<sup>th</sup>, 2006 at the Royal House Chakri Bongkoch in Pathumthani Province, Thailand. Datuk Dr. Ting-Kueh Soon (President-Elect) and Dr. San Thang (Treasurer) also attended the ceremony. Princess Chulabhorn was elected as a Fellow in the General Assembly held on August 23<sup>rd</sup>, 2005 in Seoul.
- 2) He sent a message to North Korean authorities through South Korean Ministry of Unification to invite North Korean chemists to the activities of FACS. He said that he is still waiting for responses from North Korea.

- 3) University of Tokyo started examining the results published by Prof. Taira in Nature and Science about three weeks after FACS presented him the FACS Foundation Lectureship Award. Since EXCO chose Prof. Taira as the awardee by the nomination of Chemical Society of Japan (CSJ), he requested CSJ to present a report on this issue to the 49<sup>th</sup> EXCO meeting in Tokyo.
- 4) South Korean government designated 2006 as “the year of chemistry”. He was invited in the capacity of the President of FACS to the ceremony for the Declaration of the Year of Chemistry, which was held on March 7, 2006, in Seoul.

## 6. Report of the Past President (Prof. Ho Si Thoang)

- 1) He again tried to contact chemical circle of Laos through Vietnam Union of Science and Technique Associations (VUSTA) but so far have not received reply. VUSTA promised to make further attempts to clarify the problem how we can involve Laotian Chemists to the activities of FACS (VUSTA has relationship with the counterpart in Laos)
- 2) He was invited as a representative of FACS to be Vice-Chairman of Organizing Committee of the International Workshop, organized by Chemical Society of Vietnam and ANEC on Agricultural Land Management and Measures of Remediation in Hanoi December 2005. A congratulatory speech on behalf of FACS EXCO has been delivered.

## 7. Report of the President-Elect (Datuk Dr. Ting-Kueh Soon)

- 1) The 12<sup>th</sup> ACC (2007)

We have started preparation on the 12<sup>th</sup> ACC. The First Announcement Brochure has been printed and distributed to FACS member societies at the 13<sup>th</sup> FACS General Assembly (GA) held on August 23, 2005 in Seoul, Korea. The Second Announcement Brochure with draft Program, invited plenary lectures, invitation to submit abstracts, etc., will be ready by the end of June 2006. IKM needs the support of FACS member societies to make the 12<sup>th</sup> ACC a big success.

- 2) FACS 14<sup>th</sup> General Assembly

The FACS 14<sup>th</sup> GA will be held on Wednesday, August 22, 2007 at the Putra World Trade Centre, Kuala Lumpur. It will be followed by the FACS Welcome Dinner on the evening of Wednesday, August 22, 2007. IKM intends to invite representatives from Cambodia, Myanmar, Iraq, Iran, and possibly Turkey to be observers at the 12<sup>th</sup> ACC with the support from UNESCO Jakarta. We shall also try to make contact with Mongolia, Nepal and Indonesia.

- 3) IKM 40<sup>th</sup> Anniversary

IKM is celebrating its 40<sup>th</sup> Anniversary in 2007. The 12<sup>th</sup> ACC Congress Banquet will also be the IKM 40<sup>th</sup> Anniversary Dinner. It will be held on Friday, August 24, 2007 at the Merdeka Hall, Putra World Trade Centre, Kuala Lumpur. More than 1,500 guests are expected to attend the Banquet. The Prime Minister of Malaysia will be invited as the Guest-of-Honour.

- 4) FACS Operation Manual

IKM would like to propose that FACS formally institutionalize the FACS Operation Manual at the 14<sup>th</sup> GA and publishes hard copies for distribution to FACS members. It should also be available at the FACS website.

- 5) FACS Statues

IKM would like to propose to look into the present FACS Statues with the view of revising and updating them to make them more relevant in the present. Amendments can be made at the 15<sup>th</sup> GA in Shanghai, China in 2009 when FACS will be celebrating its 30<sup>th</sup> Anniversary.

### 12<sup>th</sup> ACC

The 12<sup>th</sup> ACC (2007) will be held from August 23-25, 2007 at the Putra World Trade Centre, Kuala Lumpur. The theme of the 12<sup>th</sup> ACC is “Chemistry for Development, Environment and Sustainability in Asia”.

The 12<sup>th</sup> ACC is organized by IKM under the auspices of FACS. It is supported by the Ministry of Science, Technology and Innovation Malaysia.

The First Announcement Brochure has been printed and distributed to FACS member societies at the 13<sup>th</sup> FACS GA held on August 23, 2005 in Seoul, Korea.

IKM has invited a number of universities, research and development institutions, and

professional science and technology organizations as Joint Organizers of the 12<sup>th</sup> ACC.

The 12<sup>th</sup> ACC National Organizing Committee (NOC) is chaired by Datuk Dr. Ting-Kueh Soon with Prof. Datin Dr. Zuriati Zakaria as the Secretary as shown in Appendix I. Incidentally, Professor Zuriati has been appointed as FACS Secretary General-Elect by IKM. The 12<sup>th</sup> ACC NOC has appointed the 12<sup>th</sup> ACC International Advisory Committee (IAC) as shown in Appendix II. The NOC has also appointed Scientific Committee (SC).

The 12<sup>th</sup> ACC will also incorporate an exhibition on chemicals and instrumentation entitled “Chemicals & Instrument Asia” (CiAsia 2007). This Exhibition will be managed by ECMI Services Sdn Bhd as the Event Manag.

**The First Meeting of the 12<sup>th</sup> ACC NOC** was held on Saturday, February 18, 2006. At this Meeting, it was decided that the 12<sup>th</sup> ACC will have the following scientific programs:

- 1) 5 Plenary Lectures by Nobel Laureates or scientists of equivalent standings
- 2) 4 FACS Award Lectures
- 3) 8 General Sessions with 21 Mini Symposia:
  - Environment and Green Chemistry (EGC)
  - Food Chemistry and Technology (FCT)
  - Industrial Chemistry (INC)
  - Inorganic, Organometallic and Bioinorganic Chemistry (IOB)
  - Oils and Fats Chemistry and Technology (OCT)
  - Organic Chemistry: Mechanism and Syntheses (ORC)
  - Physical and Theoretical Chemistry (PTC)
  - Polymer and Materials Chemistry (PMC)
- 4) 4 International Symposia
  - International Symposium on Natural Products and Medicinal Chemistry (NPMC) 2007
  - International Symposium on Innovations in Chemical Education (ICE) 2007
  - International Symposium on Quality, Safety, Environment and Laboratory Information System (QSEL) 2007
  - Malaysian International Seminar on Analytical Chemistry (Seminar Kimia Analisis Malaysia (SKAM - 20) 2007

**IKM has also invited the following FACS member societies to co-organize certain General**

#### **Sessions and International Symposia:**

- 1) Royal Australian Chemical Institute (RACI)
- 2) Chinese Chemical Society (CCS)
- 3) Chemical Society Located in Taipei (CST)
- 4) Korean Chemical Society (KCS)
- 5) Chemical Society of Japan (CSJ)
- 6) Singapore National Institute of Chemistry (SNIC)
- 7) Arab Union of Chemists (AUC)

#### **FACS 14<sup>th</sup> General Assembly**

The FACS 14<sup>th</sup> General Assembly will be held on Wednesday, August 22, 2007 at the Putra World Trade Centre, Kuala Lumpur. It will be followed by the FACS Welcome Dinner on the evening of Wednesday, August 22, 2007 from 8.00 - 10.30 pm.

#### **The 52<sup>nd</sup> EXCO meeting: 24<sup>th</sup> August, 2007**

The 12<sup>th</sup> ACC Welcome Reception will be held on Wednesday, August 22, 2007 from 5.00 - 7.00 pm. The IKM Appreciation Dinner will be held on Thursday, August 23, 2007 from 8.00 - 10.30 pm. Invited guests include FACS EXCO Members, IKM Council, Member of the 12<sup>th</sup> ACC International Advisory Committee, Plenary Lecturers, FACS Awardees, Senior MOSTI Officials, Sponsors and Special Guests. This Dinner will be hosted by Universiti Kebangsaan Malaysia.

The IKM 40<sup>th</sup> Anniversary / the 12<sup>th</sup> ACC Congress Banquet will be held on Friday, August 24, 2007 from 8.00 - 11.00 pm at the Merdeka Hall, Putra World Trade Centre, Kuala Lumpur. More than 1,500 guests are expected to attend the Banquet. The Prime Minister of Malaysia will be invited as the Guest-of-Honour.

The 12<sup>th</sup> ACC Second Announcement Brochure with draft Programme, invited plenary lectures, invitation to submit abstracts, etc., will be ready by the end of June, 2006.

#### **8. Report of the Secretary General (Prof. Kyung Byung Yoon)**

- 1) Prepared the minutes of the 13<sup>th</sup> GA
- 2) Updated the list of addresses of the member societies

- 3) Updated the list of addresses of Project Directors and Co-Directors
- 4) Prepared the FACS Fellow certificates (32 out of 36)
- 5) Prepared the FACS Life Member certificates (90 out of 92)
- 6) Prepared the covers for the Fellow and Life Member certificates
- 7) Updated the database (mailing and email addresses) of FACS Fellows
- 8) Updated the database on FACS Life Members

## 9. Report of the Treasurer (Dr. San H. Thang)

Dr. San H. Thang, Treasurer of FACS, reported that the balance of the FACS account kept under RACI (Account No. 2-0165) was AUD 55,257.64 at 8<sup>th</sup> March 2006. He also reported a dormant account kept in IKM with the following balance details:

Maybank Current Account :	
	No. 562525-177723 RM 29,439.51
Maybank Fixed Deposits :	
	No. 212530-064600 RM 106,721.15
<b>Total</b>	<b>RM 136,160.66</b>
	<b>(as of Dec 31, 2005)</b>

He also raised the following issues for discussion

- 1) To protect against exchange rate fluctuation and to minimize handling fees incurred for every transaction, a USD account should be open in the Commonwealth Bank of Australia after the 49<sup>th</sup> EXCO meeting.
- 2) The remaining balance from the above account held under RACI in AUD would be converted to USD and transferred to the new USD account as the opening balance.
- 3) RACI had kindly agreed to continue administering this new account.
- 4) Upon establishment of the proposed USD account, a subscription notice would be issued to member societies, and approved seed money will be paid to Project and other committed expenses.
- 5) The viability of transferring payments via a new International Portal will be explored to reduce the normal electronic wire transfer fee of \$28 to \$10 that is a saving of \$18 per remittance.

The opening of a new USD account in Australian Bank (item 1) was approved.

## 10. Report of the Coordinator of Projects (Prof. Tahsin J. Chow)

### A. Concerning the up-grading of sub-projects

The proposals of up-grading sub-project ANRAP (Asian Network for Research on Anti-diabetic Plants) and LCI-MS (Low-Cost Instrumentation-Microscale Chemistry) to full projects are approved by EXCO members. Prof. M. Mosihuzzaman will act as the Director of ANRAP, and he has nominated Nordin Hj. Lajis from Malaysia as the Co-Director. Prof. Winghong Chan will be the Director of LCI-MS, and he has nominated Prof. Supawan Tantayanon from Thailand as the Co-Director.

The proposal of initiating a new sub-project BioT (Novel Methods of Bioconversion of Bioactive Terpenes), coordinated by Prof. Dr. M. Iqbal Choudhary from Pakistan has not been approved. The initiation of new project related to natural products should first consult with Prof. Winkler, the Director of MNPC (Medicinal and Natural Products Chemistry), and subsequently get a support, as indicated by Prof. Suh.

A new project is proposed to develop a database for collecting the historical information of FACS. Prof. Noller has expressed his interest in organizing such a project.

In the year of 2006, FACS will have 9 Projects operating, without any sub-project. IKM showed an interest to take up the previously supported sub-project "Professional Ethics in support of Chemical Disarmament". However, a full review is necessary before its operation.

### B. About seed money in 2006

Prof. David A. Winkler, Coordinator of Medicinal and Natural Products Chemistry (MNPC) requests to hold the seed money of 2006 toward 2007 for organizing a symposium at the 12<sup>th</sup> ACC, entitled "New therapeutic strategies from natural products and emerging technologies". Prof. Chee-Cheong Ho, Director of Green Chemistry, has requested for USD 1,000 seed money for organizing the International Conference on Green Chemistry, which will be held on September 2006 at Kuala Lumpur, Malaysia. Prof. Chee-Seng Toh has requested seed money for the

meeting on “Electrochemical Sciences Workshop for Educators” as part of “Asian Chemical Education Network” (ACEN). The workshop is scheduled on 21 April 2006 in Singapore, in conjunction with the 4<sup>th</sup> International Society of Electrochemistry Spring Meeting. The above three proposals, along with the regular seed money for all projects in 2006, are agreed by EXCO members.

A request by Prof. M. Mosihuzzaman, Coordinator of ANRAP, an extra USD 1000.00 in 2006 for organizing the 5<sup>th</sup> International Seminar of ANRAP on 16-18 November 2006 in Kuala Lumpur, Malaysia, has not been agreed. It is decided by the EXCO that Prof. Mosihuzzaman should be able to use the regular seed money for the expenses in this meeting.

## 11. Report of the Publication Chairman

Prof. Chung reported the contents and new cover design of FACS Newsletter (1/2006) for the approval.

- It was approved in the meeting except item 8 (Minutes of the 13<sup>th</sup> GA) since this was not yet approved by the 14<sup>th</sup> GA.

### Proposed Contents for the FACS Newsletter of 1/2006

- 1) FACS EXCO Members (2005-2007)
- 2) Message from the FACS President
- 3) 11<sup>th</sup> ACC Special Report: Summary by Prof. K.B. Yoon
- 4) Photos Addresses made by FACS President, KCS President, IUPAC President, Past President of EuChemMS
- 5) Award Lecture “Understanding of Molecular Functions: Computational Approaches”, (Prof. Jin Yong Lee)
- 6) New Fellows
  - Dr. Jong Gi Yeo, CEO of LG Chem, Korea
  - Prof. Dr. H. R. H. Princess Chulabhorn, Thailand
- 7) Special Topic: Year of Chemistry: Diamond Jubilee of the Korean Chemical Society
- 8) Minutes of the 13<sup>th</sup> GA: Prof. Kyung Byung Yoon (Secretary General of the Organizing Committee for the Preparation of the 11<sup>th</sup> ACC and the 13<sup>th</sup> GA)
- 9) Minutes on the 46<sup>th</sup> EXCO meeting
- 10) Minutes on the 47<sup>th</sup> EXCO meeting
- 11) Minutes on the 48<sup>th</sup> EXCO meeting

- 12) Other activities
- 13) Project Reports
- 14) Directories
  - Member Societies
  - Project Directors
  - Life Members
- 15) Advertisement of the 12<sup>th</sup> ACC and the 14<sup>th</sup> GA
- 16) Advertisements: LG Chem., Sinco, K-Mac, Il Shin, Dongwoo

## 12. Progress Report of the Preparation for the 12<sup>th</sup>-ACC & 14<sup>th</sup>-GA (Datuk Dr. Ting-Kueh Soon)

(The same with the Report of the President-Elect.)

## 13. Report of the Preparation for the 13<sup>th</sup>-ACC & 15<sup>th</sup>-GA

The Chinese Chemical Society neither sent delegates to the 49<sup>th</sup> EXCO meeting nor sent a written report to the Secretary General.

## 14. Review of the 13<sup>th</sup> GA Minutes

Secretary General presented the draft of the Minutes of the 13<sup>th</sup> General Assembly, held in Seoul, Korea, on August 23, 2005. The draft was approved and accepted after making some corrections and additions.

## 15. Other Businesses

- 1) About Prof. Taira
  - (1) On behalf of the Chemical Society of Japan (CSJ), Dr. Teruto Ohta, the Director of sincerely apologized for the trouble caused by the Taira issue. He also mentioned that CSJ had investigated the possible misconduct of Prof. Taira and, based on the investigation, that CSJ withdrew the nomination of Prof. Taira for FACS Foundation Lectureship Award.
  - (2) EXCO members discussed the process to deal with this issue. The formal subcommittee consisting of former President-Elect (Prof. Suh), former President (Prof. Thoang), and the former Past-President (Prof. Noller) made a unanimous agreement to propose the 14<sup>th</sup> GA the withdrawal of the FACS Foundation Lectureship awarded to Prof. Taira.

- (3) The rest of the EXCO members endorsed the agreement made by the former subcommittee.
- (4) Secretary General should immediately send a letter to Prof. Taira that the EXCO concluded that the Foundation Lectureship Award presented to him by FACS on 24 August, 2005 was withdrawn.

2) Adjustment of the Membership

- (1) Nepal Chemical Society is reinstated to a regular member society.
- (2) Himpunan Kimia Indonesia, Iraqi Chemists Union, the Mendeleev Russian Chemical Society, and Papua New Guinea Institute of Chemistry are down-graded to the observer societies.

3) About the Progress of the Foundation and Legalization of FACS

- (1) The issue of prior legalization of FACS as the

legal entity in a country was fully understood.

- (2) Australia, Japan, Korea, Taipei, China, Hong Kong, Singapore, and even Switzerland were named as the possible country to register FACS, and the search for the best country remained as an important issue.
- (3) Datuk Dr. Soon was assigned to compose a subcommittee to take care of this issue.

4) Confirmation of the Next EXCO Site (Kuwait)

Secretary General was asked to contact the Kuwait Chemical Society and confirm the next EXCO site.

5) Support Chemistry-An Asian Journal

EXCO members agreed to support the above journal by introducing it in the coming FACS News Letter.



From left to right: Prof. Takashi Tatsumi (Japan), Prof. Masato Ito (Japan), Prof. Masaaki Tabata (Japan), Datuk Dr. Ting-Kueh Soon (Malaysia), Prof. Doo Soo Chung (Korea), Prof. Junghun Suh (Korea), Dr. San H. Thang (Australia), Prof. Ho Si Thoang (Vietnam), Prof. Kyung Byung Yoon (Korea), Prof. Barry Noller (Australia), Dr. Teruto Ohta (Japan), Dr. Yoshimasa Takahashi (Japan)



EXCO Members with the representatives of Chemical Society of Japan during Asian Chemists' Evening at Nihon University(Funabashi Campus)

Asian Chemical Education Network (ACEN)

## Electrochemistry Workshop for Educators

Singapore, April 26, 2006

Department of Chemistry, National University of Singapore, together with the Singapore National Institute of Chemistry (SNIC) organized a one-day “Electrochemistry Workshop for Educators” on April 21, 2006. The workshop was sponsored by FACS and well attended by 17 participants, coming from universities, pre-universities and polytechnics. The workshops were presented by three speakers with the following topics: “Electrochemical Techniques: Fundamentals & Applications” by Dr. Paul Duckworth, Secretary, Electrochemical Division, Royal Australian Chemical Institute (EDRACI); “Electrochemistry of Thin Film Materials” by Dr. Marco Musiani, Research Director, Dirigente di Ricerca, ENI CNR, Padova, Italy and “Potentiometric Sensors Principles and Applications” by Dr. Bahruddin Saad, Professor, School of Chemical Sciences, Universiti Sains Malaysia, Penang, Malaysia. The workshop participants had a pleasant and interesting day discussing electrochemistry with the lecturers. The organizer, Dr. Chee-Seng Toh sincerely thanked ACEN, FACS for the kind sponsorship.

**Datin Dr. Zuriati Zakaria**

*Universiti Kebangsaan Malaysia, Malaysia*

*e-mail: zuriz@pkriscc.ukm.my*



# Workshop on “Contaminated Agricultural Land Management and Remediation”

Hanoi, Vietnam, 11-13 December 2005

Barry N Noller<sup>1</sup> & Huynh Van Trung<sup>2</sup> (Workshop Convenors)

1. ENTOX-The University of Queensland 39 Kessels Road, Coopers Plains QLD 4108, Australia. [b.noller@uq.edu.au](mailto:b.noller@uq.edu.au)

2. Institute for Technology of Radioactive & Rare Earth Elements, 48 Lang Ha Street Hanoi, Vietnam. [htrung@fpt.vn](mailto:htrung@fpt.vn)

## Summary

A workshop on Contaminated Agricultural Land Management and Remediation was organised 11-13 December 2005 at Hanoi, Vietnam by ENTOX-The University of Queensland and Institute for Technology of Radioactive & Rare Earth Elements together with Federation of Asian Chemical Societies, Chemical Society of Vietnam, Queensland Health Scientific Services and the financial support of the OPCW. The workshop brought together a group of 15 overseas experts and country representatives who interacted with 46 delegates from Vietnam to here expert advice on techniques and tools to define contamination, mediate and develop risk-based management tools that can be applied to maintain or reuse contaminated land for agricultural purposes. Enhancing capacity building of professionals to deal with contamination issues and providing guidelines for land management are key issues to follow in the future. The number of participants was: International participants 15; and Local participants 46.

## Background

The convenors proposed in 2003 to hold such a workshop in Vietnam under the umbrella of the Federation of Asian Chemical Societies (FACS) ([www.facs-as.org](http://www.facs-as.org)) and the Chemical Society of Vietnam (CSV) and held discussions to determine suitable format to follow and possible sponsors. The FACS Asian Network for Environmental Chemistry (ANEC/Project CREN) has identified the Organisation for Prohibition of Chemical Weapons (OPCW) as a

suitable sponsor ([www.opcw.org](http://www.opcw.org)).

Key background details and inputs were as follows :

- Contaminated land and its remediation is a significant issue in developing countries;
- Vietnam is identified as a key regional location to hold such a workshop;
- The convenors proposed that a workshop be organised through FACS CSV & Institute for Technology of Radioactive & Rare Earth Elements (ITRRE) and other Vietnamese agencies;
- Support could be provided from the National Research Centre for Environmental Toxicology (ENTOX)-the University of Queensland and Queensland Health Scientific Services (QHSS) for resource people and assistance to some key speakers, particularly Prof. P Ricci;
- OPCW is a key supporter and the organisers are very grateful for their support; and
- Thanks also to the support from colleagues in Vietnam and Ms Amanda Lee (Youth Ambassador for the Environment supported by AUS-Aid during 2005).

## Aims of Workshop

The aims of the workshop were to review contaminant identification and remediation needs of agricultural land with Vietnam as an example country, including analytical and sampling needs and hazard description:

- To determine relevant remediation approaches

for heavy metals, petroleum hydrocarbons, pesticides and mining;

- To determine training needs of Vietnam professional scientists in the designated area; and
- To identify risk assessment approaches for remediation of agricultural land that has been affected by industrial activities.

## Outline of Program

**Sunday 11 December 2005** - A half-day field trip was planned to examine contaminated sites. A visit to Bac Ninh, about one hour's drive north of Hanoi, was made on Sunday afternoon 11 December 2005 to meet local officials and to inspect a nearby degraded hill previously mined for extractive material and apparently bombed in earlier times. The hill is an eyesore being immediately behind the newly constructed town centre and in need of a rehabilitation plan to stabilize its features. A visit to an old temple was followed by dinner and a cultural show including local singers.

**Monday 12 & Tuesday 13 December 2005** -The Workshop Introduction was made by Co-convenor Prof. Huynh Van Trung. Opening speeches were given by Prof. Barry Noller (Co-convenor) and Prof. Ho Sy Thoang (Past President-FACS) and the OPCW Cooperation Program represented by Dr. Damian Tonon. Specialist presentations were given by Dr Ross Sadler, Prof. Tran Kong Tau, Prof. Paolo Ricci, Dr. Nguyen Anh, Prof. Hoang Trong Quynh, Dr. Nguyen Ba Tien, Olaf Papke, Amanda Lee & Dr Nguyen Thi Kim Dung and also Prof. Barry Noller. Country reports were given by Prof. Sen-Chun Lee (China), Prof. Somporn Kamolsiripichaiporn (Thailand), Mr. Long Lay (Cambodia) and Prof. Mustapha Ali Mohd (Malaysia). On Tuesday 13 December a Workshop discussion and review of training needs for Vietnam and related countries was chaired by Prof. Barry Noller with the assistance of Prof. Huynh Van Trung and the Close was given by Prof. Huynh Van Trung.

Translators were provided during the workshop.

### 1) Introduction, Opening and Background Details

The specific presentations were :

- *Prof. Huynh Van Trung (Vietnam)* "Introduction to Workshop"

- *Prof. Barry Noller (Australia)* "Opening Speech"
- *Prof. Ho Sy Thoang (Vietnam)* "Speech of FACS Past President"
- *Dr. Damian Tonon (Argentina)* "OPCW Cooperation Program"

### 2) Specialists Lectures

*Dr. Ross Sadler (Australia)* "Contamination Identification Study Design"

*Prof. Tran Kong Tau (Vietnam)* "How Vietnam Approaches Its Problems of Contaminated Agricultural Land"

*Prof. Paolo Ricci (USA)* "Risk Assessment Issues and Approaches"

*Dr. Nguyen Anh (Vietnam)* "The Soil Pollution Associated with Mining in Vietnam"

*Prof. Hoang Trong Quynh (Vietnam)* "Organochlorines Pesticide and Dioxin in Vietnam"

*Prof. Barry Noller (Australia)* "Pollution Control and Management"

*Dr. Nguyen Ba Tien (Vietnam)* "Study of Preparation and Application of RE Fertilizer on Agriculture"

*Prof. Barry Noller (Australia)* "Arsenic Dispersion, Environmental Fate & Toxicology"

*Olaf Papke (Germany)* "Analytical Approaches to Deal with Dioxin and Furan Contamination"

*Amanda Lee (Australia/Vietnam)* "Laboratory Quality Control Practices for Contaminated Land Studies"

*Dr. Nguyen Thi Kim Dung and Prof. Huynh Van Trung (Vietnam)* "Analytical Case Studies in Vietnam"

*Rob Dineen (Australia)* "Design Issues for Major Contamination Cleanup - Mt Lyell Acid Drainage Remediation Program 2005" (presented by Prof. Noller)

### 3) Country Papers

*Prof. Sen-Chun Lee (China)* "Good Agriculture Practice : Case Studies in China on the Production of Quality Herbs"

*Prof. Somporn Kamolsiripichaiporn (Thailand)* "Soil Contamination in Thailand"

*Mr. Long Lay (Cambodia)* "Contaminated Agricultural Land and Remediation in Cambodia"

*Prof. Mustafa Ali Mohd (Malaysia)* "Pesticide Residues in the Blood of Population of Peninsula Malaysia"



#### 4) Workshop Discussion and Review of Training Needs for Vietnam

Workshop Conveners Prof. Barry Noller (Australia) and Prof. Huynh Van Trung (Vietnam) and notes taken by Dr. Ross Sadler.

#### Tangible Outcomes

An identification of the kinds of contamination of agricultural land in Vietnam and other regional countries that have been affected by industrial activity -

The Workshop covered a wide range of contaminants and identified the main kinds of pollution that can occur with agricultural land. The delegates were very grateful to have the assistance of the foreign experts and initiative of Prof.'s Barry Noller and Huynh Van Trung in organizing the meeting. 80% of Vietnamese people live on agricultural land and hence are directly affected by pollution of agricultural land. The delegates felt it was important to emphasize the follow-up to the Workshop, including the creation of research programs that are needed. There was a keen

response to the idea to have stronger cooperation amongst all agencies represented at the Workshop. The attempt would be made to produce a CD, with all talks plus outcomes of Workshop. The need for initiation of further programs in the future was identified as a matter to be included in this report.

Another issue that was identified was pollution arising from village industries. For example, there is a 'cottage industry' of lead recycling from storage batteries and the residents are also growing their own food on land polluted by these activities. Much remains to be found out – why are there such high levels of PCB in villages – even villages in the northern areas, where there was no Agent Orange /dioxin application.

Key details were provided at the Workshop to design sampling approaches that can be used to identify important pollution sources and define the zones of impact.

Identification of relevant remediation processes for soils contaminated with heavy metals,

hydrocarbons, pesticides and acidification and the restoring of contaminated land for agriculture.

There was a comprehensive coverage of the approaches need to define the type of contamination and its extent to be incorporated into a risk-based framework. Once contamination is defined it is then possible to decide what specific clean-up and containment is needed and estimate the risks imposed on the environment and people. There were many examples given at the Workshop to illustrate the detrimental effects of uncontrolled pollution. A number of examples of clean-up procedures were given ranging from small localised activities to large scale whole of river impacts. It was identified that there is scope for community involvement in solving problems of physically (in addition to chemically) degraded environments (e.g. of the hill at Bac Ninh). Clearly there is a need to develop the capability of professionals in Vietnam and similar countries to have the necessary skills to design clean-up strategies and implement them.

A clear idea of training needs in Vietnam and other regional countries.

Organizations such as OPCW have a role to play here; the range of OPCW programs has been outlined. Also, it will be useful to look at National Agencies as well as other International Agencies such as UNEP, UNIDO, OECD, FAO, etc.

The question was raised as to what can be done about other countries in the region such as Cambodia and Laos, where less investigation of extent of contaminated has been undertaken? Neighbouring countries such as Malaysia, Australia, and China may be able to assist.

Applicable risk-based approaches.

The importance of risk-based approaches was identified and highlighted the need to have such approaches put in place for contaminated site management. The connection between risk assessment and management tool was emphasised but will only work when the key component and their limitations are understood.

## How Will These Outcomes Be Achieved?

By bringing together key overseas experts and interacting with local professionals to :

A good range of international experts was brought together to form a strong resource base which can be accessed in the future. The presentations form a substantial information resource.

- Identify problem definition of contaminants - Clearly identified and backed up by source materials.
- Scope of problem - Depends on the scale and severity of pollution. Scope identification was explained in detail.
- Skills needed - A clear need for a National program in Vietnam and related countries like Cambodia and Laos was identified.
- Kinds of risk approaches to apply - Clearly elaborated by Prof. Paolo Ricci, International expert.
- Achievement of outcomes measured by ability of local professionals to adapt information and skills to local problems - Information resources were provided. Local professionals have access to the material.
- Major output of workshop will be creation of knowledge network to provide ongoing assistance to local professionals - The email addresses are being gathered and a virtual network via e-mail is being created.

## Relevance of the Workshop to developing countries with economies in transition

The relevance is the very specific connection to need for skills and methodology to :

- Undertake contaminated site clean-up
- Assess the effectiveness of approach in relation to environmental and health risks of land for agricultural purposes
- Provide a skills-building process

## Relevance of the conference to developing countries with economies in transition

- The very specific connection to need for skills and methodology to undertake contaminated site

clean-up - Confirmed

- How to assess the effectiveness of approach in relation to environmental & health risks from land for agricultural purposes - Detailed case studies giving consequences of lack of action
- Essentially a skills-building process - Identified

### Relevance of the conference to the Chemical Weapons Convention?

Vietnam and other countries in the region like Cambodia and Laos have left over contamination sites from industry activities operated during war-time and beyond. The professional skills of personnel are

slowly improving but better understanding of modern risk-based approaches is still needed. An enhanced skills based in various countries of the region will help the Chemical Weapons Convention deal with contamination episodes.

### Close

Prof. Huynh Van Trung closed the workshop and thanked all delegates for their attendance. The sponsors were also thanked, particularly OPCW. Prof. Paolo Ricci gave a vote of thanks on behalf of the International delegates.

## Low-Cost Instrumentation-Microscale Chemistry (LCI-MSC)

# Low-Cost Instrumentation-Microscale Chemistry (LCI-MSC)

## Director

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## Other Staff

Dr. Martin M. F. Choi, Associate Professor, Department of Chemistry, Hong Kong Baptist University, serve as the Secretary of the Project.

Assistant Prof. Pornpan Udomkanjananan, Department of Chemistry, Faculty of Science, Chulalongkorn University, Phyathai Road, Patumwon, Bangkok 10330, Thailand, serve as the Co-Secretary of the Project.

## Activities being conducted in 2006

- To consolidate the international links in microscale chemistry, both Director and the Co-Director assisted the organization of mini-symposia "Microscale Chemistry and Green Chemistry" as part of the Pacificchem2005 held on December 15-20, 2005. Prof. Wing-Hong Chan and Dr. S.

Tantayanon delivered talk in the Conference. Several scholars in the region also gave oral and poster presentation.

- The 1<sup>st</sup> issue of the project newsletter for sharing and promoting of incorporation of microscale chemistry in laboratory teaching was edited. Copies of the newsletter were sending out to member societies of the FACS.
- A website ([www.hkbu.edu.hk/~iwlcmic](http://www.hkbu.edu.hk/~iwlcmic)) has been created and updated. New development of teaching kits and low cost instruments were reported in the website. The site serves well as a platform to promote interactions among different countries/regions in Asia.
- "Water Parameters Analysis Set" and "Breathalyzer" were developed as "low cost teaching kits" to enhance the teaching of environmental chemistry and forensic chemistry. To publish laboratory manuals exemplified the use of the low-cost instrumentation in improving our laboratory teaching.
- In collaboration with local education authority, we have conducted a number of teacher workshops. Both primary and secondary school teachers benefited from the workshops.
- A joint schools Air-monitoring Station pilot project has started in November, 2006. We provide basic low-cost instrument including a four-channel photometer and an "Air Pollution Testing Kit". Biweekly data on four air pollutant parameters (i.e. NO<sub>2</sub>, SO<sub>2</sub>, TSP and O<sub>3</sub>) will be collected by each of the participating schools. As environmental issues attract the major concerns of our society, we shall share results of this pilot study in the next issue of the Newsletter.

## Low-Cost Instrumentation & Microscale Chemistry (LCI-MSC) Newsletter

ISSUE 1

The New Chapter of LCI-MSC (Low-cost Instrumentation and Microscale Chemistry) - A Full FACS Project  
<http://www.lci-msc.edu.hk>

Under the outstanding directorship of Prof. K. V. Sane, the Sub Project Low-Cost Equipment (LCE) of the FACS was served well for the Asian Chemistry Community for an extended period of time. During the term of the new country, Prof. Sane retired from his tenure in the Sub Project.

On 13-15 December 2005, the 7<sup>th</sup> International Symposium on Microscale Chemistry sponsored by UNESCO, the Hong Kong Education Department and the Chinese Microscale Chemistry Center was successfully held at Hong Kong Baptist University. Prof. Wing Hong Chan was the Chair of the Organizing Committee of the event. Among other participants, Dr. Masato Ito, a FACS ESCO member, took part in the Symposium. On his capacity as the Coordinator of Projects of the FACS, Dr. Ito invited Prof. Chan to submit a Sub Project proposal of "Low-cost Instrumentation and Microscale Chemistry (LCI-MSC)" to the ESCO, with the vision to pursue Prof. Sane's dedicated work in promoting low-cost equipment and also to introduce the "microscale chemistry" as a means to innovating laboratory teaching.

Starting from Jan 2002, a new Sub Project LCI-MSC under the auspices of the FACS has been established in which Prof. W. H. Chan has served as the Director. After running of the Sub Project for four years, with the endorsement from the ESCO, the LCI-MSC has upgraded its status as a full FACS Project with effect from 1 January 2006.

The Project team has been strengthened and is comprising the members listed below.

<b>Project Director</b>	Prof. Wing Hong Chan (Email: whchan@hkbu.edu.hk) Department of Chemistry, Hong Kong Baptist University
<b>Project Co-Director</b>	Associate Professor Dr. Supawan Tantayanon (Email: supawan_t@bhu.ac.th) Department of Chemistry, Faculty of Science, Chulalongkorn University, Prachin Road, Patanasarakul, 10330, Thailand
<b>Project Secretary</b>	Dr. Martin M. F. Chan (Email: mffchan@hkbu.edu.hk) Department of Chemistry, Hong Kong Baptist University
<b>Project Co-Secretary</b>	Assistant Professor Paraporn Udomkajansarn Department of Chemistry, Faculty of Science, Chulalongkorn University, Prachin Road, Patanasarakul, 10330, Thailand

To exercise the mandate of the Project, in the next two years, a variety of activities are proposed and are enumerated below:

- To organize regional LCI-MSC workshop in Bangkok in 2007 to provide training to chemistry practitioners and educators in Asia
- To publish newsletters for sharing and promoting of incorporation of microscale chemistry in laboratory teaching
- To enhance communication and professional contact from educators of common concerns among different countries/regions in Asia through web-based interactions (Website of the Project <http://www.lci-msc.edu.hk> - welcome)
- To design and fabricate low-cost instrumentation and develop relevant activities in using them for laboratory teaching
- To publish laboratory manuals exemplified the use of the low-cost instrumentation in improving our laboratory teaching
- To organize or to assist the organization of the 4<sup>th</sup> International Symposium on Microscale Chemistry in Hong Kong or any other suitable places in 2007
- To organize local workshops for training to chemistry educators

You are cordially invited to taking part in these activities when they are launched. Updated information can be found in the website of the Project. If you have any views and suggestions in relation to the Project, please communicate with us.

**Synopsis of the 7<sup>th</sup> International Microscale Chemistry Symposium**

Under the leadership of Prof. Chan Wing Hong, the 7<sup>th</sup> International Symposium on Microscale Chemistry was organized and held on 13-15 December 2005 at Hong Kong Baptist University, Campus. As a continued effort in promoting microscale chemistry, the 7<sup>th</sup> Symposium was held at Universidad Bicentenario-Ciudad de Mexico on 18-20 May 2006. The event provided a platform for gathering international and national (Mexico) experts to share their latest developments in Microscale Chemistry. One of the objectives of the Symposium is to honor Drs. Ronald Pike, Mohan Singh and Zvi Szafran (professors at different US institutions) for their pioneering work in this field. Dr. Jorge G. Druce was the Chair of the Organizing Committee.




From the left: R. Pike, J. Druce, W. H. Chan and M. Singh in the Symposium

The Logo of the Symposium at the Symposium Venue

Keynote speeches and workshops were delivered by the following experts in the field:

Alejandro Hacia	Universidad Nacional Autónoma de México
James A. Borchert	Alcoa Corporation, USA
Kwok Man Chan	St. Stephen College, Hong Kong
Arturo Pappas Infante	Universidad Bicentenario - México
Miguel Garcia Guerrero	Universidad Nacional Autónoma de México
Wing Hong Chan	Hong Kong Baptist University, Hong Kong
Kenneth Denoco	University of Oregon, USA
Christer Gustberg	University of Gothenburg, Sweden
Mohamed Hagelet	Arab College for Education - Israel
Martha Elena Romerosuarez	Universidad Bicentenario - México
Jorge G. Druce	Universidad Bicentenario - México
Angela Kahler	Humboldt University, Germany
Moshohar Lomsh	Baiflan University, Israel
Bruce Mattson	Craighton Joint University, USA
Viktor Obendorf	Graz Polytechnical Academy, Austria
Ronald Pike	University of Utah, National Microscale Chemistry Center, USA
Peter Schwarz	Misraat, Egypt - Germany
Mohan Singh	National Microscale Chemistry Center, Merrimack College, USA
Zvi Szafran	Georgia Technical Institute, National Microscale Chemistry Center, USA

The Symposium gathered teachers and researchers from 4 continents, coming from 14 countries and 15 states of Mexico, and it was organized by the Mexican Microscale Chemistry Center, of the Department of Chemistry and Engineering Sciences at UTA.

In order to extend the benefits of the presence of the experts mentioned above to High School students and their teachers, special conferences and demonstrations were organized for approximately 200 students from different local schools.

To access to the Symposium materials (Summary, Calendar and Abstracts), one can visit the website at <http://www.lci-msc.edu.hk/InternationalSymposium05.html> in the Web system (password: 2005). They look forward to receiving eFlora from experts and peers in this field to organize the future international event (i.e. the 4<sup>th</sup> International Symposium on Microscale Chemistry).

**New Teaching Kits Developed by LCI-MSC at Hong Kong Baptist University**

**Air Pollution Testing Kit**

Finding the air quality indicators with a simple set of testing kit  
Getting the key parameters  
[Total Suspended Particulates, NO<sub>x</sub>, SO<sub>x</sub>, and O<sub>3</sub>] in minutes



An innovative "Air Pollution Testing Kit" developed by us provides students with hands-on experience in getting the four key air quality parameters (i.e. Total Suspended Particulates (TSP), NO<sub>x</sub>, SO<sub>x</sub>, and O<sub>3</sub>). Essential techniques in environmental analysis will be acquired by students through the use of this testing kit.

TSP are sampled with a low-cost air-pump, and the materials collected on a filter over a period of 24 h can be used to measure the total amount of suspended solids. Using a novel passive sampler developed by us, the airborne NO<sub>x</sub> and SO<sub>x</sub> can be collected and quantified photochemically. By utilizing the 4-channel LEDs-based photometer developed by us, low level of passive sampling time could be enough for early accurate quantitation of these two important air pollutants. We adopt the iodometric analytical method for measuring the concentration of ozone in the ground-level atmosphere.



**Breatalyzer**

The principle of breathalyzer in determining the alcohol content in the "breath" can be demonstrated in a semi-quantitative manner by the teaching kit.

From basic organic chemistry, it is well known that ethanol can be oxidized by dichromate to acetaldehyde and acetic acid. The orange color dichromate being reduced by ethanol will change to green Cr<sup>3+</sup>, providing the basis of the visual detection of ethanol. The breathalyzer in this design consists of a 15 cm glass tube packed with 5 bands of silica-gel particles coated with a dilute acidified solution of potassium dichromate to produce the orange color. The bands are separated by white bands containing chemically inert materials and the molecular sieve are placed at the either end of the device (reverse mount). A balloon with 5 drops of ethanol is used as simulated breath to test the alcohol content. The breath is allowed to flow through the tube for 20 s. When the ethanol vapor contacts the orange-coated bands, the color will change from orange to green. The number of bands that undergo color change can indicate the relative amount of alcohol in the breath. Such a device can also be used to estimate the ethanol content of beverages.

**Small Scale Chemistry Center in Thailand under the Leadership of Supawan, Project Co-Director**

Small Scale Chemistry Center of Chulalongkorn University has been established in 2000. The main objective of the center is to promote and disseminate the knowledge of small scale chemistry laboratory teaching in both high school and undergraduate levels. The other aim is to build the small scale chemistry network in Thailand and South East Asia countries. The center has offered the trainings, workshops and lectures on the relevant topics. It has also conducted training of the trainers of small scale chemistry laboratory teaching for rapid dissemination of this knowledge in Thailand. To help the teachers conduct the small scale laboratory class, the center has supplied the plastic small scale kits with chemical solutions which are ready to do the experiments at low cost. Recently the organic small scale chemistry laboratory kit called "Small-Lab Kit" (Fig. 1) has been introduced to the center by Associate Professor Supawan Tantayanon. The kit comprises glassware, heating tool and other basic laboratory accessories, including a small water pump. The "Small-Lab Kit" can thus be suitable for performing organic laboratory at any place, particularly where lacks the formal laboratory including at home. Accordingly, the center can offer both small scale organic and general chemistry laboratory with the laboratory kit supply.






Fig. 1 Small-Lab Kit fabricated by the Center      Fig. 2 Demonstrating the small-Lab by Dr. Supawan (in the center)


**Useful Websites in Microscale Chemistry**

In this first issue of the newsletter of LCI-MSC, to be shared with fellow colleagues, three different websites with materials in English are introduced, viz.


- <http://www.lci-msc.edu.hk/en/index> - This is the website of the LCI-MSC Project under the auspices of the FACS. Several low-cost teaching kits and a number of experiments focused on environmental chemistry are developed to be shared with peers in the field.
 



4-channel LEDs-based photometer developed by Four Schwarz  
<http://www.misraat.de>



Microscale activities for the kids developed by Four Schwarz  
<http://www.misraat.de>



Center for Microscale Gas Chemistry developed by Bruce Mattson  
<http://mattson.craighton.edu>
- <http://www.misraat.de> - A variety of laboratory activities for different background and age of students and teachers can be accessed in this website. Materials are provided in both English and German.
- <http://mattson.craighton.edu> - Bruce Mattson has single-handedly developed many microscale laboratory activities in manipulating with 17 different gases. This is truly the unique center for "Microscale Gas Chemistry".

**Future Event by us**

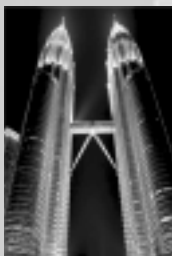
We are actively planning to organize a "Low-Cost Instrumentation and Microscale Chemistry Workshop" early next year in Bangkok. Once the details of workshop have been worked out, we shall announce the event to all interested colleagues in the region.

# 12TH ASIAN CHEMICAL CONGRESS (12ACC)

August 23 – 25, 2007

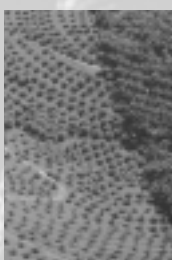
Putra World Trade Centre, Kuala Lumpur, Malaysia

“Chemistry for Development, Environment and Sustainability in Asia”



## Invitation to 12ACC

I am pleased to announce that Institut Kimia Malaysia, or IKM in short, is organizing the 12th Asian Chemical Congress (12ACC) 2007 from August 23-25, 2007 in Kuala Lumpur, Malaysia under the auspices of the Federation of Asian Chemical Societies (FACS).



12ACC will be the Meeting of leading scientists from all over the world. With the theme, “Chemistry for Development, Environment and Sustainability in Asia”, 12ACC will discuss the latest in chemical research, development and education with special emphasis on sustainable development and improving the quality of life in Asia. We are planning a scientific programme that covers all areas of chemistry and chemistry-related disciplines. Nobel Laureates and eminent scientists have been invited to present plenary and keynote lectures. 12ACC will also present 4 FACS Awardee Lectures and include other satellite functions of member societies of FACS. An exhibition, the Asian Exposition on Chemicals and Instrumentation (CiAsia) 2007, will also be held as part of 12ACC.



On behalf of the 12ACC National Organising Committee and Institut Kimia Malaysia, I would like to invite you to participate in this exciting event and meet up with fellow scientists from all over the world. Besides the scientific meetings, we are also planning a series of social functions. Malaysia is celebrating our 50 years of independence in 2007 and we would make sure that your trip to Malaysia for the 12ACC will be a memorable and unforgettable one.



Members of the 12ACC National Organising Committee and I are looking forward to meeting you, your family and colleagues at 12ACC in August 2007.

With best wishes.



Datuk Dr Soon Ting-Kueh  
Chairman, 12ACC National Organising Committee  
President-Elect, Federation of Asian Chemical Societies



Organised by:



Institut Kimia Malaysia (IKM)

Under the auspices of



Federation of Asian Chemical Societies  
(FACS)



### International Advisory Committee (IAC)

**Nobel Laureate Prof. Yuan T Lee**  
Academia Sinica, Chinese Taipei

**Nobel Laureate Prof. F Sherwood Rowland**  
University of California at Irvine, USA

**Nobel Laureate Prof. Sir John E Walker (invited)**  
University of Cambridge, UK

**Nobel Laureate Prof. Ahmed Zewail**  
California Institute of Technology, USA

**Nobel Laureate Prof. Ryoji Noyori**  
Institute of Physical and Chemical Research,  
RIKEN, Japan

**Prof. Leiv K Sydnnes**  
International Union of Pure and Applied Chemistry,  
Norway

**Prof. Kazuko Matsumoto**  
International Union of Pure and Applied Chemistry,  
Japan

**Prof. Chunli Bai**  
Chinese Chemical Society, China

**Prof. Goverdhan Mehta**  
Indian Institute of Science, India

**Prof. Ho Chee Cheong**  
Institut Kimia Malaysia, Malaysia

**Prof. T S Andy Hor**  
Singapore National Institute of Chemistry, Singapore

**Prof. Sultan T Abu-Orabi**  
Arab Union of Chemists, Jordan

**Prof. Jung-Il Jin**  
Korea University, Korea

**Prof. Robert G Gilbert**  
University of Sydney, Australia

**Prof. Junghun Suh**  
Federation of Asian Chemical Society, Korea

**Datuk Dr. Ting-Kueh Soon**  
Federation of Asian Chemical Society, Malaysia

**Prof. Ho Si Thoang**  
Federation of Asian Chemical Society, Vietnam

**Prof. Barry N Noller**  
Federation of Asian Chemical Society, Australia

**Prof. Kyung Byung Yoon**  
Federation of Asian Chemical Society, Korea

**Dr. San H Thang**  
Federation of Asian Chemical Society, Australia

**Prof. Tahsin J Chow**  
Federation of Asian Chemical Society, Chinese  
Taipei

**Prof. Doo Soo Chung**  
Federation of Asian Chemical Society, Korea

**Prof. Yoshinori Asakawa**  
Tokushima Bunri University, Japan

**Prof. Geoffrey A Cordell**  
University of Illinois, USA

**Prof. Gerard Bodeker**  
University of Oxford, UK

**Prof. Kurt Hostettmann**  
University of Geneva, Switzerland

**Prof. Yodhathai Thebtaranonth**  
BIOTEC, Thailand

**Prof. Iqbal Choudary**  
University of Karachi, Pakistan

## Introduction

The Federation of Asian Chemical Societies, or FACS in short, was established in 1989 in Bangkok, Thailand. Comprising 27 national chemistry societies from countries in Asia and the Pacific, FACS represents the chemistry community in Asia and the Pacific.

The Asian Chemical Congress (ACC) is the biennial flagship scientific meeting of FACS. ACC brings together scientists from Asia and other parts of the world to discuss the latest in chemical knowledge, research and development, and education.

The 12th Asian Chemical Congress (12ACC) will be held in the Putra World Trade Centre, Kuala Lumpur, Malaysia from August 23-25, 2007. With the theme of "Chemistry for Development, Environment and Sustainability in Asia", 12ACC will focus on chemistry for knowledge creation, economic development, environmental management and sustainability in the world in general, and in Asia Pacific in particular. The following is an update on 12ACC.

## Scientific Program

The scientific Program of 12ACC comprises the following:

### Plenary Sessions

6-8 Plenary lectures will be presented by the following eminent scientists:

- **Nobel Laureate Prof. F Sherwood Rowland (confirmed)**  
University of California at Irvine, USA
- **Nobel Laureate Prof. Ahmed Zewail (invited)**  
California Institute of Technology, USA
- **Prof. Chunli Bai (confirmed)**  
Chinese Academy of Sciences, China
- **Prof. K C Nicolaou (confirmed)**  
Scripps Research Institute, USA
- **Prof. Douglas Kinghorn (confirmed)**  
University of Ohio, USA
- **Nobel Laureate Prof. Kurt Wiithrich (invited)**  
Scripps Research Institute, USA
- **Nobel Laureate Prof. Roderick MacKinnon (invited)**  
Rockefeller University, USA
- **Nobel Laureate Prof. Richard R Schrock (invited)**  
Massachusetts Institute of Technology, USA

### 4 FACS Awardee Lectures

The 4 FACS Awardee Lectures are as follows:

- FACS Foundation Award Lecture
- FACS Young Chemist Award Lecture

### National Organising Committee (NOC)

Datuk Dr. Soon Ting Kueh - Chairman	IKM/FACS
Prof. Datin Dr. Zuriati Zakaria - Secretary	IKM/FACS
Prof. Dr. Ho Chee Cheong	IKM
Datuk Kee Sue Sing	IKM/JKM
Mr Chee Ong Koh	IKM
Dato' Chang Eng Thuan	IKM
Dato' Dr. Ong Eng Long	IKM
Prof. Dr. Lee Chnoong Kheng	IKM
Assoc Prof. Dr. Lee Yook Heng	IKM
Mr Yeoh Guan Huah	IKM
Mr Qua Sai Chuan	IKM
Dr. Yew Chong Hooi	IKM
Datuk Dr. M Mohinder Singh	IKM
Dr. Goh Swee Hock	IKM
Dr. Lim Yau Yan	IKM
Prof. Dato' Dr. Mohd Jamil Maah	UM
Dato' Prof. Dr. Muhammad Idiris Saleh	USM
Prof. Dr. Ibrahim Baba	UKM
Prof. Dr. Aminah Abdullah	UKM
Assoc Prof. Dr. Noor Aini Mohd Yusoff	UKM
Assoc Prof. Dr. Taufiq Yap	UPM
Assoc Prof. Dr. Lau Seng	UNIMAS
Assoc Prof. Dr. Marcus Jopony	UMS
Assoc Prof. Dr. Norashikin Saim	UiTM
Mr Chang Hon Fong	JKM
Mdm Ramlah Md Isa	MARDI
Dr. Rasadah Mat Ali	FRIM
Dr. Chow Mee Chin	MPOB
Dr. Sabariah Samsudin /	
Mr Hidayatullah Hj Hussein	MCB
Dr. Chen Sau Soon	SIRIM
Mr Shaharul Sadri Alwi	DSM
Prof. Dato' Dr. Ikram M Said	MNPS
Assoc Prof. Dr. Zaini Hamzah	ANALIS
Mr CP Saw	ECMI
Mr Ethan Wong	ECMI
Mr Saiful Wahab	TLM
Ms Ong Bee Kwang - Executive Secretary (I)	IKM
Ms Suhaili Saadun - Executive Secretary (II)	IKM

- FACS Distinguished Contribution to Economic Development Award Lecture
- FACS Distinguished Contribution to Advancement in Chemical Education Award Lecture

### 5 Scientific Sessions

The 5 scientific sessions will cover all major areas in chemistry. Under each session, a number of mini symposia with specific topics of interest will also be presented.

- Inorganic, Organometallic and Bioinorganic Chemistry (IOB)
  - Multifunctional Ligands in Coordination Chemistry (IOB-MUL)
  - New Developments in Bioinorganic (ION-NDB)
- Organic Chemistry: Mechanism and Syntheses (ORC)
  - New Frontiers in Organic Syntheses (ORC-NFS)
  - Recent Developments in Physical Organic Chemistry (ORC-POC)
- Physical and Theoretical Chemistry (PTC)
  - New Developments in Catalysis (PTC-CAT)
  - Advances in Electrochemistry (PTC-ELE)
- Industrial Chemistry (INC)
  - Petroleum and Petrochemicals (INC-PPC)
  - Agrochemicals (INC-AGC)
  - Biofuels - Renewable and Green Energy (INC-BIO)
- Oils and Fats Chemistry and Technology (OCT)
  - Food and Nutrition (OCT-FAN)
  - Chemical Analysis and Technology (OCT-CAT)
  - Oleochemicals (OCT-OLE)
  - Novel Oils and Fats (OCT-NOF)
  - Sustainable Production (OCT-SUP)

### 7 International/Regional Symposia

In addition, the following 7 International / Regional Symposia will also be presented.

- International Symposium on Environmental and Green Chemistry (EGC) 2007
- International Symposium on Food Analysis, Chemistry and Technology (FACT) 2007
- International Symposium on Innovations in Chemical Education (ICE) 2007
- International Symposium on Natural Products and Medicinal Chemistry (NPMC) 2007
- International Symposium on Advances in Polymer and Materials Chemistry (PMC) 2007
- Third Regional Symposium on Total Laboratory Management (QSEL) 2007
- Malaysian International Symposium on Analytical Sciences (SKAM - 20) 2007

### Exhibition

The Asian Exposition on Chemicals and Instrumentation (CiAsia) 2007 will be held in conjunction with 12ACC. CiAsia 2007 will showcase the latest in analytical techniques and instrumentation, laboratory equipment and management, chemicals including industrial,

## Meeting Announcement: The 12<sup>th</sup> ACC

### 12ACC Joint Organisers

12ACC is being organized by Institut Kimia Malaysia (IKM) with the collaboration of the following Malaysian universities, Government departments and agencies, R&D institutions and S&T organizations:

Universiti Malaya (UM)  
Universiti Sains Malaysia (USM)  
Universiti Kebangsaan Malaysia (UKM)  
Universiti Putra Malaysia (UPM)  
Universiti Malaysia Sarawak (UNIMAS)  
Universiti Malaysia Sabah (UMS)  
Universiti Teknologi MARA (UiTM)  
Chemistry Department Malaysia (JKM)  
SIRIM Berhad  
Department of Standards Malaysia (DSM)  
Malaysian Agricultural Research and Development Institute (MARDI)  
Forest Research Institute Malaysia (FRIM)  
Malaysian Palm Oil Board (MPOB)  
Malaysian Cocoa Board (MCB)  
Malaysian Natural Products Society (MNPS)  
Persatuan Sains Analisis Malaysia (ANALIS)

The following member societies of FACS have also joined us in co-organising 12ACC:

Chinese Chemical Society (CCS)  
Chemical Society of Japan (CSJ)  
Korean Chemical Society (KCS)  
Singapore National Institute of Chemistry (SNIC)  
Royal Australian Chemical Institute (RACI)  
Arab Union of Chemists (AUC)

### 12ACC Secretariat

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127B, Jalan Aminuddin Baki,  
Taman Tun Dr Ismail  
60000 Kuala Lumpur, Malaysia  
Tel: +60 3 7728 3272  
Fax: +60 3 7728 9909  
Email: 12acc@ikm.org.my;  
ikmmy@tm.net.my  
Website:  
www.ikm.org.my/12acc.htm

*Deadline for the submission of abstracts has been extended to April 30, 2007 to enable more scientists to participate in 12ACC*

petrochemicals, oleochemicals, polymers and plastics, and fine chemicals, process control and automation, and scientific publications.

CiAsia 2007 is managed by ECMI Services Sdn Bhd. Please refer to the website: [www.ecmi.com.my](http://www.ecmi.com.my) for more information.

### Social Program

The organisers have arranged a series of social Programs for the delegates and their accompanying persons. Some of these social Programs include the following:

- **12ACC Welcome Reception** on Wednesday, August 22, 2007 at the Putra World Trade Centre, Kuala Lumpur.
- **12ACC Congress / IKM 40th Anniversary Banquet** on Saturday, August 25, 2007 at Merdeka Hall, Putra World Trade Centre, Kuala Lumpur.

### Satellite Functions

**Satellite Functions** including the following:

- 14<sup>th</sup> Federation of Asian Chemical Congress (FACS) General Assembly (GA)
- 52<sup>nd</sup> FACS EXCO Meeting
- Inaugural General Meeting (IGM) of Asian Phytochemical Society (APS)
- 23<sup>rd</sup> Annual General Meeting (AGM) of Malaysian Natural Products Society (MNPS)
- 20<sup>th</sup> Annual General Meeting (AGM) of Persatuan Sains Analisis Malaysia (ANALIS)

### Call for Papers

Those who are interested to present paper for 12ACC, either oral (20 minutes) or poster (size A0), are required to submit a soft copy of an abstract of not more than one-page (A4 size, microsoft office word with times news roman font size 12, single spacing) *via* email, [ikmmy@tm.net.my](mailto:ikmmy@tm.net.my) or [12acc@ikm.org.my](mailto:12acc@ikm.org.my), to the 12ACC Secretariat.

### Language

The official language of 12ACC will be English.

### Abstract Submission

Please indicate whether your paper is for oral presentation or poster in which scientific session or symposium. Abstracts submitted will be forwarded to the chairperson of the respective session/symposium for their consideration. Authors will be informed of the acceptance of their papers within three weeks after their submission. Accepted papers will appear in the 12ACC website: [www.ikm.org.my/12acc.htm](http://www.ikm.org.my/12acc.htm) one month after their submission.

### Registration with 12ACC

Only those who have registered with 12ACC and pay the fee, are only

allowed to make their presentations at 12ACC. Please submit your registration form together with the fee early. Only those who have submitted the registration form and fee at least one month before 12ACC will have their papers appearing in the scientific Program.

### Registration Information

All participants of 12ACC must submit the completed registration form together with the fee to the 12ACC secretariat. Only those who have submitted the registration form and paid the fee are allowed to take part in the proceedings of 12ACC. Registered 12ACC participants are entitled to the following:

- Attendance at all scientific sessions of 12ACC
- Receiving a set of 12ACC materials including the souvenir Program and book of abstracts
- Lunches and refreshments during 12ACC
- Attendance at the 12ACC welcome reception and congress banquet.

### Registration Fees

Local Participants			
Category of Participants	Early-Bird (before 01/07/2007)	Nomal	Late (after 31/07/2007)
Members of IKM & collaborating organisations	RM500	RM600	RM700
Others	RM650	RM750	RM900
Full-time Graduate Students*	RM350	RM450	USD600
Overseas Participants			
Category of Participants	Early-Bird (before 01/07/2007)	Nomal	Late (after 31/07/2007)
Members of FACS Societies	USD200	USD250	USD300
FACS Life Members	USD175	USD225	USD275
Others	USD250	USD300	USD350
Full-time Graduate Students*	USD150	RM450	rm550

\* A Letter from the Head of Department or Dean of Faculty confirming graduate student is required.

### Official Airline

The Official Airline of 12ACC is Malaysia Airlines. Congress participants will get special rates by quoting the reference number **G 12<sup>th</sup> ACC** when making bookings for their travels.

### Official Travel and Tour Agent

The official travel and tour agent of 12ACC is TLM Leisure & Convention Sdn Bhd. TLM will handle all matters related to travel arrangements including airport transfer, pre- and post-conference tours of 12ACC. It will also handle hotel reservations for those seeking accommodation. For those who require accommodation, please contact TLM at the following address:

### TLM Leisure & Convention Sdn Bhd

Unit B - 0 - 11, Block B, Ground Floor, Megan Avenue II  
12, Jalan Yap Kwan Seng, 50450 Kuala Lumpur, MALAYSIA  
Tel: +60 3 2161 1899, Fax: +60 3 2162 1899, Email: tour@tlm.com.my  
For attention: Mr. Saiful Wahab / Mr. Matt Voo

## 12<sup>TH</sup> ASIAN CHEMICAL CONGRESS (12ACC) 2007

### Registration Form

I would like to register for 12ACC 2007.

Name: Prof/Assoc Prof/Dr/Mr/Miss\*

Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

I would like to submit an abstract entitled: \_\_\_\_\_

for  Oral or  Poster at the following Session/Symposium (please tick one only):

IOB     ORC     PTC     INC     OCT     EGC  
 FACT     ICE     NPMC     PMC     QSEL     SKAM-20

Deadline for submission of abstracts is April 30, 2007. Please submit abstract via email as an attached word document to the 12ACC Secretariat.

Enclosed a cheque/draft (made payable to Institut Kimia Malaysia) for the amount of RM/USD\*

\_\_\_\_\_ for the following Registration Fee (please tick):

- Registration Fee: Local Participants  
 Member: RM500 (Early Bird)/600 (Normal)/750 (Late)\*  
 Non Member: RM650 (Early Bird)/750 (Normal)/900 (Late)\*  
 Graduate Student: RM350 (Early Bird)/450 (Normal)/600 (Late)\*

- Registration Fee: Overseas Participants  
 FACS Member: USD200 (Early Bird)/250 (Normal)/300 (Late)\*  
 FACS Life Member: USD175 (Early Bird)/225 (Normal)/275 (Late)\*  
 Non Member: USD250 (Early Bird)/300 (Normal)/350 (Late)\*  
 Graduate Student: USD150 (Early Bird)/200 (Normal)/250 (Late)\*

Early Bird refers to Registration Fee received before July 01, 2007; Late refers to Registration Fee received after July 31, 2007.

Payment may also be made by direct bank transfer into the following account:

Name of Account: Institut Kimia Malaysia      Ac No: 3127 731017  
Name of Bank: Public Bank Berhad      Swift Code: PBB EMYKL (for foreign transfer only)  
Address: 66, 68 & 70, Jalan Burhanuddin Helmi, TTDI, 60000 Kuala Lumpur, Malaysia

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Please submit completed Registration Form together with the Registration Fee and Abstract (if applicable) to the 12ACC 2007 Secretariat at the following address:

#### 12ACC Secretariat

Institut Kimia Malaysia

127B, Jalan Aminuddin Baki, Taman Tun Dr Ismail

60000 Kuala Lumpur, Malaysia

Tel: +60 3 7728 3272

Fax: +60 3 7728 9909

Email: 12acc@ikm.org.my; ikmmy@tm.net.my

Website: www.ikm.org.my/12acc.htm

\* Delete where not applicable

## FACS EXCO Members (2005-2007) (as of 2007. 1. 22)

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### Prof. Kyung Byung Yoon (Korea), Secretary General

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**Erratum** : The "Taiwan" in page 11, Table 5 is replaced with "Chemical Society Located in Taipei".



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