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UNIVERSITY OF MALAYA
KUALA LUMPUR

EDITORIAL — *Research Beyond Borders*

RESEARCH PERSONALITY — *Professor Dr. Thong Kwai Lin*
Professor Dr. Mohamed Kheireddine Aroua
Dr. Chan Kok Gan

IN THE CENTREFOLD — *INPEX 2008*
MTE 2008
ITEX 2008
Intellectual Property Expo 2008
NATPRO 2008

CENTRE OF RESEARCH — *Institute of Ocean and Earth Sciences (IOES)*

THIS ISSUE **Research Beyond Borders**

RESEARCH BULLETIN FOR THE UNIVERSITY OF MALAYA

Luthop ruschiorum

on the cover:
artwork entitled 'Research Beyond Borders'

IPPP Bulletin

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CONTENTS

EDITORIAL
Research Beyond Borders 1

FEATURE ARTICLE
VC's Take on Internationalisation 2

RESEARCH PERSONALITY
- Professor Dr. Thong Kwai Lin 4
- Professor Dr. Mohamed Kheireddine Taieb Aroua 5
- Dr. Chan Kok Gan 6

RESEARCH AWARDS
- Prime Minister's Initiative for International Education (PMI2) 8
- L'Oréal Malaysia for Women in Science Fellowships 2008 12
- The University of Malaya Chancellor Award for Excellence 12

CENTERFOLD HIGHLIGHT
- INPEX 2008 10
- Intellectual Property Expo 2008 10
- NATPRO 2008 10
- MTE 2008 11
- ITEX 2008 11

RESEARCH EVENTS
- International Appointment of UM Professors - UNSW visiting reseach fellows 14
- Tracking Development: Diverging paths to prosperity and poverty 15

AWARD WINNING RESEARCH 16

CENTRE OF RESEARCH
- Institute of Ocean and Earth Sciences (IOES) 18

LIST OF EXHIBITIONS (back cover)

ON THE BACK COVER
- PECIPTA 2009

"cactus blooms" inspired by Shazrin 2008

Medicinal Mushrooms : A Rapidly Developing Area Of Biotechnology For New Therapeutics
http://umfacts.um.edu.my/gallery/

Datuk Rafiah Salim
Vice Chancellor

Why Being International Is Important to Us

Philosophical Reason
Education is for betterment of nation AND humanity

Formal Reason
One of the Key Performance Indicator (KPI) targets set by Government of Malaysia to University of Malaya

Practical Reason
Internationalization will lead to increased quality and competitiveness
Enrich the learning experience of our students

Why international collaboration ?

A strong national and internationally-connected science, education, research and innovation capacity will lead to:

- a more sustainable and vigorous intellectual environment
- provide valuable global skills and perspectives to students and staff
- development of highly qualified and globally- aware talent to fuel labour market demands and the growing K-economy
- development of new businesses

University of Malaya's Vision

To be an internationally renowned institution of higher learning in research, innovation, publication and teaching

Editorial

Research Beyond Borders

The globalization phenomenon is here whether we like it or not. Thus, we, the researchers in Malaysia, could no longer just focus our research within the local context only. Our research projects and problems will now have to be geared towards solving global problems, if they are not already are. Even in trying to solve local problems through our research, the results and products of our research work are expected to impact the global community.

Experts in various agencies such as in the United Nations and WHO have highlighted three most important issues affecting the global community currently as being those involving (i) climate changes, (ii) renewable and sustainable energy and (iii) healthcare and wellness. This puts researchers in Malaysia at an advantage since we can tap onto our rich natural resources and biodiversity to work on at least 2 out of the 3 current major global problems. For example, the abundance and rich biodiversity in Malaysia could provide some leads in curing some of the "old" diseases as well the re-emerging diseases affecting the world currently. The same diverse natural resources could be a "novel" sustainable source for energy that is very much needed by the global community currently. Our researchers will just have to be a little bit more creative and think out-of-the-box to use all that are available to us to project our capability and make some impact in solving the global problems through our research.

For the most parts, however, the researchers in the UM are not very far off from this expectations. This issue, with the theme "research beyond border", highlights some of our researchers' involvement in global research projects such as the PM12 projects or the projects funded through The Centre for Poverty and Development Studies (CPDS). In addition, this issue also highlights some of the products of our researchers that have made impact internationally through awards and recognitions achieved. Congratulations to all and keep up with the good work for the good of the global community.

Noorsaadah Abd. Rahman (Editor)

Internationalisation of UM: Research activities and collaborations

It is readily acknowledged that knowledge is a commodity that knows no boundaries. Thus in today's cohesive yet borderless world, collaboration in all fields of educational endeavour is now more of a norm than an exception. If we were to dissect further the need for collaboration it is easily justifiable. A strong national and internationally-connected science, education, research and innovation capacity will surely lead to the following:

- a more sustainable and vigorous intellectual environment
- provide valuable global skills and perspectives to students and staff
- development of highly qualified and globally- aware talent to fuel labour market demands and the growing K-economy
- development of new businesses

All institutions of higher learning (IHL) desire and practise collaborations in various manner and modes in order to add value to their institutions. In the case of the University of Malaya (UM), the choice of partners cuts across all sectors of the education system, both core and peripheral. Notable partners include the public and private institutions of higher learning and research institutes, other government agencies and private sectors and last but not least multilateral forums such as the UNESCO, WHO and other well-known global organizations.

Some examples

Teaching Programmes Collaboration Partners

- Japan Society for Promotion of Science
- Malaysian University Consortium for Environmental Development (Denmark)
- EU-Asia Link Programme (Denmark & Netherlands)
- Queen Mary College, London
- Kyoto University-Tsinghua University-UM -E-Learning Programme

Teaching Programmes Recognised by Foreign Professional Institutions

- ARIBA- Built Environment
- Inst. Of Chemical Engineers UK – Chemical Engineering
- General Dental Council of UK (all u/g and p/g prog)
- Institute of Chartered Accountants of England & Wales (u/g prog)
- Australian Chartered Accountants
- Association of MBA UK (MBA Prog)
- Institute of Physics & Engineering in Medicine (Master in Medical Physics)

Research related collaboration with universities

- University College London – Computational Biosciences
- Queens University Belfast - Ionic Liquids
- University of Strathclyde – Drug Discovery Research
- University of Cambridge – Haematological Malignancies
- University of Stanford – HIV Aids
- University of Columbia – Poverty & Development Studies
- University of Sydney – Agricultural Sciences
- University of Kyoto – Environmental Ethics, Engineering & Regulations

- University of Hamburg – Glycolipids
- Max Planck Institute – Combinatorial Chemistry/Catalysis
- Queen Mary College - Dentistry

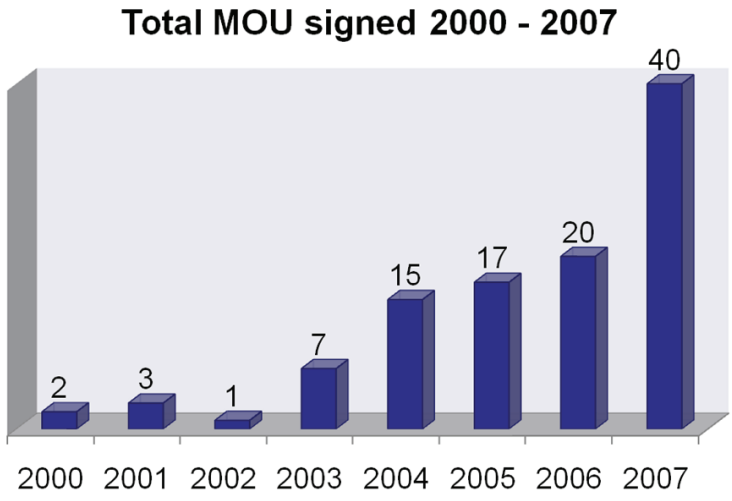
Research related collaboration with international agencies

- National Institutes of Health (USA)-HIV-Related Studies in Malaysia
- National Institute of Infectious Diseases (Japan) – Genotyping of pathogens and emerging protozoans
- (Korea Ocean Research & Development Institute)-Marine Science
- International Antarctic Institute (Hobart, Tasmania) – Antarctic Studies
- UNDP – Impact of HIV/Aids, Dugongs Conservation
- Seegene Inc.(Korea) – Dengue Virus Genotyping Kit and Detection of Chikungunya Virus
- National Institute of Ocean and Earth Sciences (Britain) – Marine sciences

The common platform for co-operation is the desire to develop academic exchange programmes and cooperation in teaching and research in the furtherance of the advancement and dissemination of learning. This may include various modes that are designed to suit the nature of width and spread of collaborative activities agreed by the partners. These measures include the following activities commonly practised by many other IHLs:

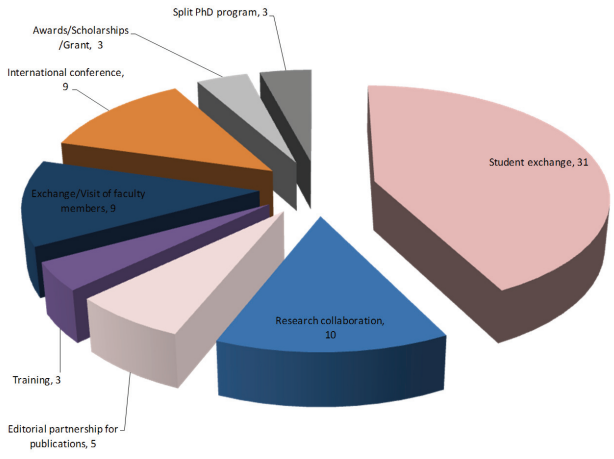
- Exchange of staff and students in teaching and research programmes
- Exchange of scientific materials, publications and information
- Joint curriculum development
- Research collaboration

In tandem with development worldwide, researchers in Malaysia are also being held accountable to conduct research that have a direct impact on society. Some of these research outputs can reach the community at large through technology transfer activities such as licensing, outright sales and spinoff companies. As with other academic institutions, commercialization of research outputs is not a familiar ground for most academics. As such in UM we have established guidelines in Intellectual Property and Consultancies. A special unit that deals with technology transfer and commercialization has been established to deal with these related issues. Commercialisation of research products is still at an infancy stage, although with more proactive actions such as greater funding for patents and increase of business savvy human resource it is envisaged that major improvements can be made.



International MOUs with Activities to Date

Total: 73



Summary List of MOUs by Country

Argentina	1	Norway	1
Australia	8	Philippines	1
Austria	1	Russia	1
Brunei	1	Singapore	2
Chine	5	South Africa	1
Chile	1	Sweden	1
Estonia	1	Syria	1
Egypt	1	Thailand	5
France	2	United Kingdom	15
Germany	1	USA	8
Hong Kong	1	Vietnam	2
Indonesia	14	Yemen	2
Ireland	1	Zambia	1
Italy	2	Others	7
Japan	18		
Korea	14	**TOTAL: 131**	
Netherlands	7		
New Zealand	4	**MALAYSIA: 51**	

[Professor Dr. Thong Kwai Lin]

Professor Dr. Thong Kwai Ling received her BSc Hons (Zoology) in 1980, M.Sc (Marine Ecology) in 1984 and PhD (Molecular Microbiology) in 1997.

She joined the Universiti Malaya as a lecturer at the Foundation Studies in Science in 1990 and was promoted to an Associate Professor at the Institute of Biological Sciences, Faculty of Science in 1997. In 2003, she was promoted to a full Professor at the Institute of Biological Sciences, Faculty of Science, where she is still a faculty member.

Since 1997, Professor Thong has graduated 8 PhDs, 20 Masters and more than 120 BSc graduates in microbiology and molecular biology related disciplines.

Professor Thong Kwai Ling is a specialist in the field of molecular microbiology of food bourne and nosocomial bacterial pathogens. She was the first in Malaysia to establish the technique of pulse-field gel electrophoresis in characterising bacterial pathogens, shortening the original 5-day method of DNA preapartion to 1 day. The rapid turnaround time is useful in real time determination of clusters of strians involved in outbreaks of infectious diseases. In addition, Professor Thong has also developed a rapid molecular-based method to detect Salmonella enterica in clinical and environmental samples.

In 1994, Professor Thong published a landmark paper in Journal of Clinical Microbilogy (32:1135). In this paper, she showed that Salmonella typhi is genetically diverse as opposed to the dogma that S. typhi is homogeneous. She also demonstrated that the movement of S. typhi strains among the South East Asian countries, and strains from fatal cases of typhoid fever were genetically distinc from those associated with the mild form of the disease. Such information has great impact in the choice of candidate strain for vaccine design. Due to her expertise, Professor Thong has been called upon to investigate cases of nosocomial infection in teaching hospitals and cases of suspected contaminated imported food. Prof. Thong has published over 100 papers in refereed national and international journals and proceedings. In addition, she has presented more than 150 papers in conferences and symposia. Her exuberance in research and output can be attested to by numerous awards consisting of 10 gold medals, 8 silver medals and 4 bronze medals that she has received in various national and international exhibitions and expositions.

Prof Thong Kwai Ling has also collaborated with numerous researchers in various national and international research institutions that include the CDC, USA, PulseNet Asia Pacific, PulseNet USA and the Japanese National Institute of Infectious Diseases.

Due to her excellent work, Professor Thong has also been appointed the American Society for Microbiology (ASM) Ambassador to Southeast Asia for 2007 to 2010. In addition, she has been conferred the Excellent Scientist Award by the Ministry of Higher Education in 2005 and the Medical Association of Malaysia-Infectious Disease Fund Visiting Fellowship in 2006. Her outstanding achievement has led to her being awarded the MTSF Science and Technology Award in 2007, an award carrying a cash prize of RM 30,000.00 and a certificate.

Professor Dr. Mohamed Kheireddine Taieb Aroua

Professor Dr. Mohamed Kheireddine Aroua was born on 17 July 1962 in Mateur, Tunisia. He has a bachelor's degree in chemical engineering and master in material science and engineering. In 1992, he obtained his doctoral degree in Analytical Chemistry from the University of Nancy I (France). He began his career at the University of Malaya in 1993 as a lecturer with the chemical engineering department. His excellence in academia is evident when he was promoted to an associate professor in 2002 and a full professor in 2007.

Professor Dr. Mohamed Kheireddine's main area of research is in the fundamental and applied aspects of separation processes such as carbon dioxide capture using alkanolamine technology, membrane processes, adsorption and also electrochemical processes using activated carbons and modified activated carbons obtained from industrial carbonaceous wastes such as palm shell. In addition, he has undertaken research in air pollution such as the characterization and apportioning of particulate matters during the periods of haze. In acknowledgement of his interest and expertise in this area, he was appointed as a consultant for the Department of Environment on five (5) projects on pollutant emission factors, emission inventory, Best Available Techniques (BAT), and clean production (CP). Under his supervision, 6 Ph.D. and more than 10 Master of Engineering Science students had graduated and currently he is supervising 9 Ph.D. and 8 Master students.

Professor Dr. Mohamed Kheireddine is also active in publishing and knowledge dissemination. He had published more than 40 research papers in refereed journals and presented more than 80 research papers at national and international conferences. Recently he developed a new environmental friendly process for the production of pesticides and this work is currently patent pending. He was a member of the organizing committee of the Regional Symposium on Chemical Engineering (RSCE) held in Petaling Jaya in 2002 and co-chairman of the technical committee of the Asian Pacific Chemical Engineering conference (APCChE) held in Kuala Lumpur in August 2006. He also acted as co-guest editor for two special issues on Process System Engineering and Separation Processes in the Asia Pacific Journal of Chemical Engineering. Currently, he is a member of the Scientific Board of the International Congress on Green Process Engineering (GPE2009) which will be held in Italy in June 2009.

Recently, Professor Dr. Mohamed Kheireddine has commenced research in a new strategic areas namely the production of biodiesel and the development of super absorbents derived from palm shell. The biodiesel research is focussing mainly in developing new solid catalysts and novel technologies to produce fuel from non-food based raw ma-

terials. His research on developing carbon molecular sieves from palm shell is a good example of "Waste to Wealth" concept. This work has received three gold medals at the Malaysia Technology Expo (MTE) 2006, International Invention, Innovation, Industrial Design & Technology Exhibition (ITEX) 2006, and Seoul International Invention Fair (SIIF) 2006. In 2007, Professor Mohamed Kheireddine received the prestigious University of Malaya Chancellor award for invention.

Above: *Professor Dr. Mohamed Kheireddine Aroua receives the University of Malaya Chancellor Award for Excellence (Invention category) from DYTM Raja Dr. Nazrin Shah Ibni Sultan Azlan Muhibbuddin Shah*

Recent Publications

1. Aroua, M.K.,Leong, S.P.P.,Teo, L.Y., Yin,C.Y., Daud,W.M.A.W (2008). Real-time determination of kinetics of adsorption of lead (II) onto palm shell-based activated carbon using ion selective electrode. B*ioresource Technology*, **99 (13)**, 5786- 5792.
2. Shahin Ghafari, Masitah Hasan, Mohamed Kheireddine Aroua, Bio-electrochemical removal of nitrate from water and wastewater—A review, *Bioresource Technology*, **Volume 99, Issue 10**, July 2008, 3965-3974.
3. Ahmad, W.M.A. Wan Daud, M.K. Aroua, Adsorption kinetics of various gases in carbon molecular sieves (CMS) produced from palm shell, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **Volume 312, Issues 2-3**, 15 January 2008, 131-135.
4. Saeid Baroutian, Mohamed K. Aroua, Abdul A. A. Raman, and Nik Meriam N. Sulaiman, Density of Palm Oil-Based Methyl Ester, *J. Chem. Eng. Data,* 2008, **53**, 877–880.
5. Mohamed Kheireddine Aroua, Fathiah Mohamed Zuki and Nik Meriam Sulaiman, Removal of chromium ions from aqueous solutions by polymer-enhanced ultrafiltration, *Journal of Hazardous Materials*, **Volume 147, Issue 3**, 25 August 2007, 752-758.
6. A.G. Liew Abdullah, N.M. Sulaiman, M.K. Aroua and M.J. Megat Mohd Noor, Response surface optimization of conditions for clarification of carambola fruit juice using a commercial enzyme, *Journal of Food Engineering*, **Volume 81, Issue 1**, July 2007, 65-71.
7. Donni Adinata, Wan Mohd Ashri Wan Daud and Mohd Kheireddine Aroua, Production of carbon molecular sieves from palm shell based activated carbon by pore sizes modification with benzene for methane selective separation, *Fuel Processing Technology*, **Volume 88, Issue 6**, June 2007, 599-60.
8. Donni Adinata, Wan Mohd Ashri Wan Daud and Mohd Kheireddine Aroua, Preparation and characterization of activated carbon from palm shell by chemical activation with K2CO3, *Bioresource Technology*, **Volume 98, Issue 1**, January 2007, 145-149.
9. Chun Yang Yin, Mohd Kheireddine Aroua and Wan Mohd Ashri Wan Daud, Review of modifications of activated carbon for enhancing contaminant uptakes from aqueous solutions, *Separation and Purification Technology*, **Volume 52, Issue 3**, January 2007, 403-415.
10. C.Y. Yin, M.K. Aroua and W.M.A.W. Daud, Modification of granular activated carbon using low molecular weight polymer for enhanced removal of Cu2 + from aqueous solution, *Water Science & Technology*,**Vol 56, No 9**, 2007, 95–101.
11. Abdelbaki Benamor and Mohamed Kheireddine Aroua, An experimental investigation on the rate of CO2 absorption into aqueous methyldiethanolamine solutions, *Korean J. Chem. Eng.*, **24(1)**, 2007, 16-23.
12. K.Yasotha, M.K. Aroua, K.B. Ramachandran, I.K.P. Tan, Chemical Characterisation of biodegradable polyhydroxyalkanoates (PHAs) recovered by enzymatic treatment and ultrafiltration, *Journal of Chemical Technology & Biotechnology*,**82**, 2007, 847-855.
13. Chun Yang Yin, Mohd Kheireddine Aroua, Wan Mohd Ashri Wan Daud, Impregnation of palm shell activated carbon with polyethyleneimine and its effects on Cd2+ adsorption, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **Volume 307, Issues 1-3**, 15 October 2007, 128-136.
14. W.M.A. Wan Daud, M.A. Ahmad, M.K. Aroua, Carbon molecular sieves from palm shell: Effect of the benzene deposition times on gas separation properties, *Separation and Purification Technology*, **Volume 57, Issue 2**, 15 October 2007, 289-293
15. Ahmad, M.A., Wan Daud,W.M.A., Aroua,M.K., Synthesis of carbon molecular sieves from palm shell by carbon vapor deposition, *Porous Materials*, **14(4)**,2007, 393-399.
16. Adinata,D.,Daud,W.M.A.W, Aroua,M.K., Carbon modified silica based adsorbent for potential application, *Journal of nanoparticle Research*, **9(4)**,2007, 555-559.

[LOOK WHO'S TALKING: Bacterial cell-to-cell Communication & Dr. Chan Kok Gan]

For a man of his years, Dr. Chan Kok Gan has raised a few eyebrows with his academic background. Qualified by double degrees in law and molecular microbiology, he was spoilt for choice at one time. His decision took many by surprise, particularly his parents. Dr Chan chose not to be a lawyer and joined ISB (Genetics & Molecular Biology) in 2007. Deep down, he is certain that molecular microbiology remains his passion. Nonetheless, he does not let his LLM (Master of Laws) training go to waste. His specialisation in intellectual property law complements his scientific research perfectly in biotech patenting. Currently, Dr Chan is contributing his legal and science expertise in CEBAR acting as Coordinator for the Master of Biosafety. He plays an active role in biosafety laws.

Way back in his undergraduate studies, Dr Chan was introduced into the fascinating world of microbiology. He has been told that microorganisms are the architects of the world. These tiny bugs are shaping the behaviour of human beings and other living organisms. There he met his mentor in classical microbiology, Assoc. Prof Dr Tan Eng Lee, who was also his B.Sc. and M.Sc. supervisor. "To truly understand bacteriology, you must think like the bacteria", says Dr Tan to him. Since than, Dr Chan spent most of his time studying how bacteria behave. Prior to his retirement, Dr. Tan has advised him to pursue his PhD work in molecular biology.

"Bacteria talk for a reason, and that reason is always beneficial to the population. This is something human should humbly learn from bacteria", says Dr Chan. "Sometimes, it is a wonder if you listen to the nonsense from man", he adds.

Molecular biology has given Dr. Chan a new sense of intimacy with his pets at a closer range. Dr. Chan's scientific research interest is on bacterial cell-to-cell communication, commonly known as quorum sensing (QS). Currently, he is actively doing research on jamming this bacterial communication, a process called quorum quenching (QQ). Because most of the bacterial virulence factors are QS-regulated, hence jamming the signal may lead to novel therapeutic approach.

Research in his lab in Nottingham.

His training by the world-class

scientists Chan has been invited as sole sponsored Japan Society for Promotion of Science (JSPS) Young Scientist to attend Nature's conference in Tokyo (Japan). The Nature Publishing Group sponsored young scientists are potential important network in Asia for research. After this, Dr Chan was awarded the Malaysia Toray Science Foundation (Japan) to fund his work on QQ. Later in the same year, Dr Chan was awarded handful of research grants to support his work on QS and QQ.

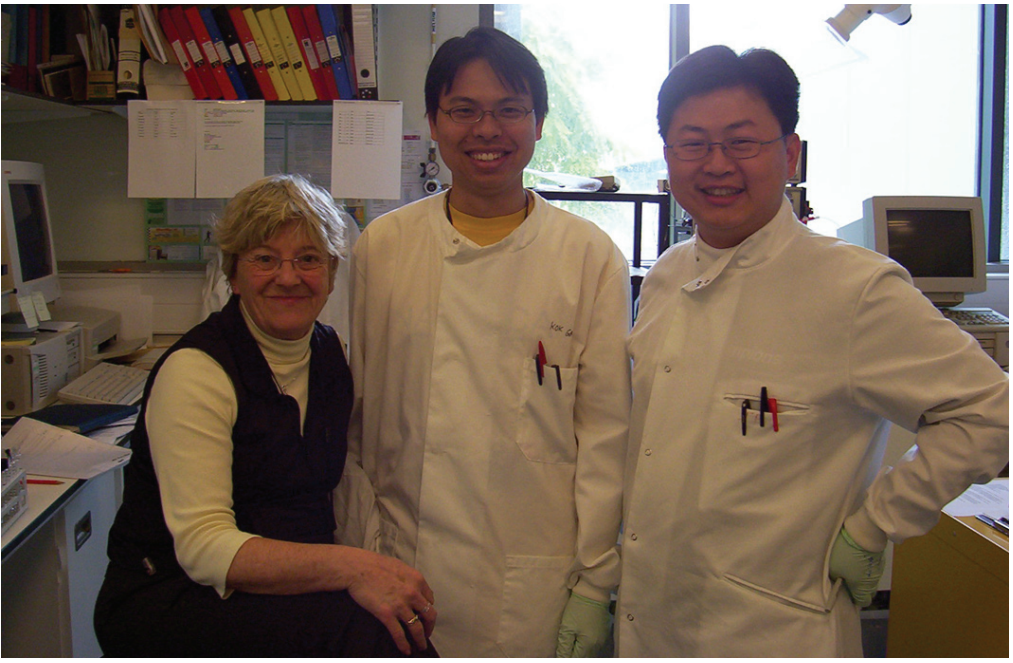
In 2008, Dr Chan has been awarded a France Government Fellowship enables him to do QS research in CNRC (Paris). This grant is meant to support training of Dr Chan the latest techniques in bacterial QS and inhibition of plant pathogen's virulence. In the same year, the UK government has awarded Dr Chan the much coveted UK Prime Minister's Initiative 2 (PMI2), a funding for Dr Chan to do cutting-edge research in the UK, with his now collaborator, Prof Paul Williams; PhD supervisor then.

With his experience as a Commonwealth Scholar, Dr Chan is ambitious to do research in a borderless world. Consequently, he has successfully established collaboration with Nottingham University (UK), IVS (CNRS, Paris), NUS (Singapore) and NTU (Singapore) during 2007-2008. All of them are world-class scientists in their respective field. Currently, Dr Chan is active member of the Society of General Microbiology (UK), the Institute of Biology (London), American Society for Microbiology (USA).

By standing on the shoulders of the giants, international and national funding, and with UM's support in hand, Dr Chan's only intention, is to do cutting-edge research with a dedicated international research teams, in the hope to gain mutual benefits and to disseminate the acquired knowledge to the students in UM. Perhaps, Dr Chan may be involved in merging the laws and the molecular microbiology one day…

After being trained by his MSc supervisor Assoc. Prof Dr Tan Eng Lee, Dr Chan did his PhD work under the supervision of Prof Koh Chong Lek and Prof Sam Choon Kook. Dr Chan was than embarked on his journey to uncover the mystery of how bacteria talk to his neighbours. After one year of research, Dr Chan has moved into another area of QS, he was zealously studying how to make the bacteria shut up! Dr Chan was successful in isolating numerous bacteria that can stop bacterial communication. Soon after this, Dr Chan was awarded the prestigious Commonwealth Split-site PhD Scholarship from the Commonwealth Commission based in London. He was than trained by the Prof Paul Williams, world renowned pioneering scientist in bacterial QS.

During his stay in the UK, Dr Chan has had the privilege to meet the Common Scholars and Fellows from four corners



Dr Chan (middle) and his lab mates. Mavies (left, HPLC expert) and Dr Davy (right, Yersinia quorum sensing expert)

of the world. He has made friends from 24 countries in a Royal Dinner hosted by Her Majesty, represented by the Minister in London. This unique experience has shaped Dr Chan to position himself on global radar, starting from his work in UM. All work but no play makes a boy dull, Dr Chan is certainly neither bookish nor a book-worm, when studying in the UK, Dr Chan has back-packed with his friends to the Land's End, all the way north to the Isle of Skye, Edinburgh, Glasgow, Inverness (Scotland); to the most southerly part Lizard Point, not to forget also the Midland (Oxford, Birmingham, Cambridge, Bath, London, Coventry, Leicester, Leeds, Sheffield, Warwick, Nottingham, Stratford-upon-Avon, York…), Cardiff (Wales).

Thereafter, Dr Chan joined UM in 2007 as lecturer. He continues to work on QS. Within the same year, Dr Chan authored an international paper on soil bacteria QQ, with the assistance of one undergraduate. Soon after this, Dr Chan has been invited as sole sponsored Japan Society for Promotion of Science (JSPS) Young Scientist to attend Nature's conference in Tokyo (Japan). The Nature Publishing Group sponsored young scientists are potential important network in Asia for research. After this, Dr Chan was awarded the Malaysia Toray Science Foundation (Japan) to fund his work on QQ. Later in the same year, Dr Chan was awarded handful of research grants to support his work on QS and QQ.

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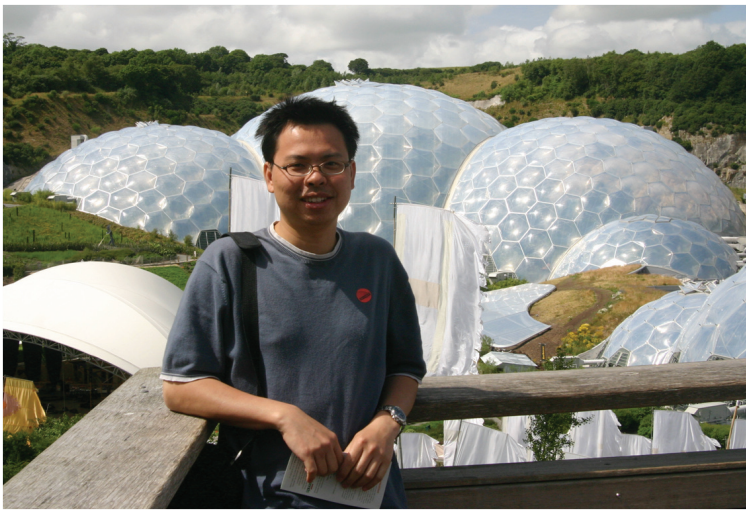
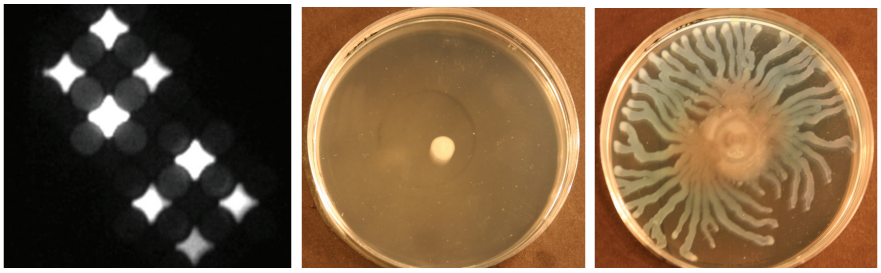




***Left**: Dr Chan (middle) and his lab mates. Mavies (left, HPLC expert) and Dr Davy (right, Yersinia quorum sensing expert)*
***Bottom Left**: This is not the twinkling star (left picture). It is bacterial quorum sensing producing bioluminescence (white background)*
***Bottom Center & Right**: Bacterial quorum sensing: (Left: communication jammed by Dr Chan; Right: Bacterial communicating)*

International Appointment of UM Professors - UNSW Visiting Research Fellows

Three prominent professors (as in pics above) from University of Malaya were invited to participate in the inaugural International Research Workshop hosted by the University of New South Wales, Sydney, Australia.

Right: *Professor Dr. Nik Meriam Nik Sulaiman*
Centre: *Professor Dr. Nasrudin Abd. Rahim*
Left: *Professor Dr. Sazaly Abu Bakar*

The workshop was held on the grounds of UNSW Campus from 20-22 February 2008. The participants were provided with a bursary of AUD $1000 to cover for airfare and was accorded with the warmest of hospitality including a dinner date at the beautiful Catalina Restaurant in Rose Bay with the The Hon. Verity Firth NSW Minister for Science & Medical Research.

The Workshop brought together researchers from over 50 partner universities in the Asian region and provided them with the opportunities to exchange ideas with UNSW leading researchers in her areas of research strengths comprising the following clusters:

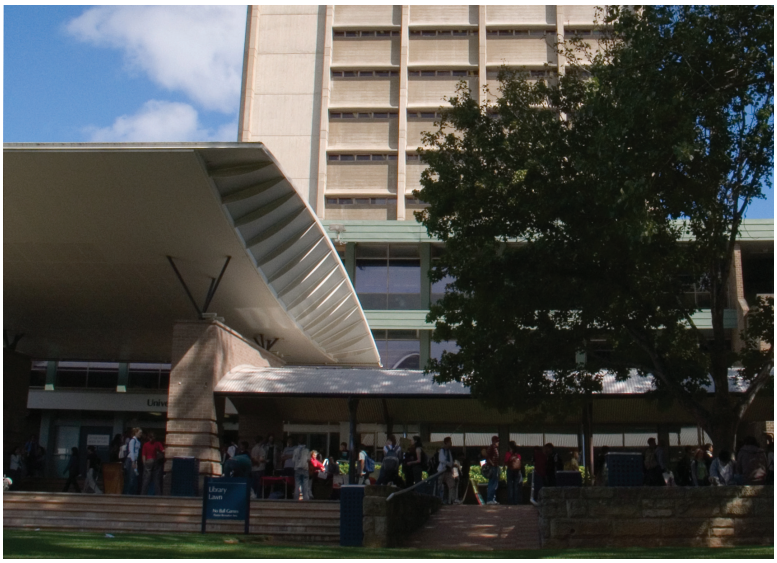
- Biomedical Sciences
- Water, Environment and Sustainability
- Next Generation Materials and Technologies
- ICT, Informatics and Robotics
- Social Policy, Government & Health Policy
- Business, Law and Finance

Each of these clusters are further supported by outstanding Centres of Research/Excellence which were open to the participants according to their field of interest.

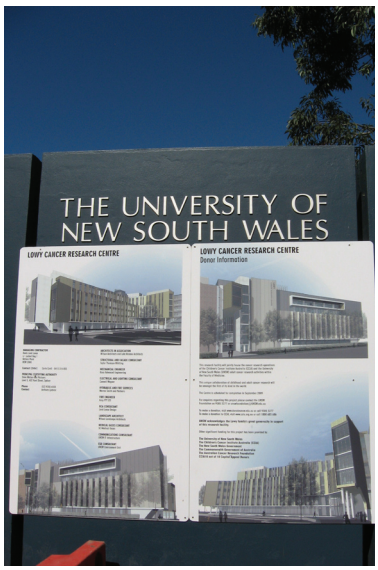
The Workshop also saw the formal appointment of Visiting Research Fellows to the participants for a three-year period commencing 1 March 2008. These ambassadors will form the international point of contact for UNSW to network with the researchers in their own countries.

Indeed this innovative effort by UNSW has already provided a fertile ground for developing a framework that supports a pre-eminent strategic research network in the region that drives bi-lateral and multi-lateral initiatives in the future. to bear fruits with the establishment of important research based connections and networks. It is heartwarming to note that UNSW considers her ASIAN partners as an important collaborative research partners.

The appointed UM Professors are happy to invite fellow researchers in UM to leverage this international partnership with UNSW and will do their best to act as the initial point of contact, in particular for areas in infectious diseases, next generation materials, environment and energy.



Above: *42-kilowatt (peak power) grid-connected photovoltaic system on the north-facing roof of the Quadrangle building. The photovoltaic cells weredeveloped by UNSW research teams* ***Left:*** *The library building at the University of New South Wales*
Left: *Lowy Cancer Research Centre Project UNSW*



Tracking Development: Diverging paths to prosperity and poverty

Southeast Asia and Sub-Saharan Africa in comparative perspective: A multidisciplinary research project and multinational

The Tracking Development project seeks to help reintegrate African and Southeast Asian discourses on development in ways which have practical relevance for poverty alleviation and development cooperation, which represent the views of African and Southeast Asian actors themselves, and which contribute directly to research capacity building in both regions. The most innovative features of the project are its South-South 'changing places' feature, whereby Asian and African researchers carry out extended study on and in each other's countries; its emphasis on information and views obtained at first hand from (former) decision-makers in the South; and its use of a broad multidisciplinary approach, involving historians, geographers and anthropologists as well as economists, to the interpretation of the economic divergence between Sub-Saharan Africa and Southeast Asia.

Tracking Development involves cooperation between two area studies centres in the Netherlands (the KITLV and the African Studies Centre) and eight research institutions in Africa and Asia. Besides the KITLV, the Southeast Asian side of Tracking Development in the Netherlands also includes two scholars based at the University of Amsterdam. The eight research institutions involved in the project are the University of Malaya; the Indonesian Institute of Sciences (LIPI), Jakarta; the Centre for Urban and Development Studies, Ho Chih Minh City; the Centre for Advanced Study, Phnom Penh; the Nigerian Institute for Social and Economic

Research (NISER), Ibadan; University of Nairobi, Research on Poverty Alleviation (REPOA), Dar Es Salaam; and Centre for Basic Research, Kampala. The project also provides eight PhD scholarships (one for each country from the South) t as well as providing instititutional contacts and network-building for the candidates.

The University of Malaya is represented by the Country Coordinator, Assoc. Prof. Dr. Hamidin Abdul Hamid (hamidin@um.edu.my) and Assoc. Prof. Dr. Joseph M. Fernando(jmfernando@um.edu.my) from the Department of History, Faculty of Arts and Social Sciences.





Invention & New Product Exposition (INPEX 2008)



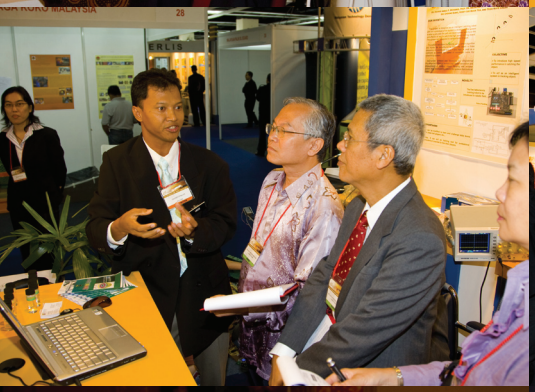



Intellectual Property Expo 2008



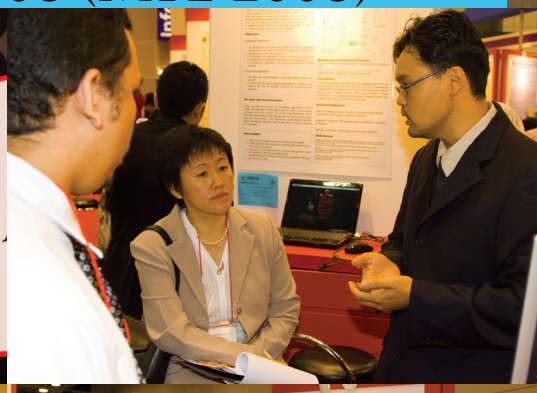
Asia Pacific Natural Products Expo (NATPRO 2008)






Malaysia Technology Expo 2008 (MTE 2008)

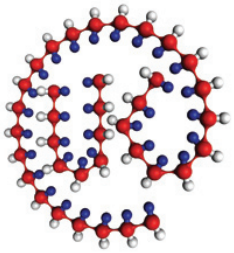





International Invention, Innovation and Technology Exhibition (ITEX 2008)

Prime Minister's Initiative for International Education (PMI2)

Launched in April 2006, the Prime Minister's Initiative for International Education (PMI2) is a five year strategy which will build on the success of the first PMI to secure the UK's position as a leader in international education and sustain the managed growth of UK international education delivered both in the UK and overseas.



International student recruitment to the UK is an important element within the strategy, but our ability to continue to attract students increasingly depends on our reputation and standing in the international arena. Not only is this about the quality and value of our education, it is also about the contribution we make globally and the strength of the partnerships we build.

PMI2 focuses on new countries as well as strengthening relationships in countries where there are well established ties.

It sets out four interconnected strands:

UK positioning: marketing and communications

The first PMI taught us that students choose the country first and then look to select an educational institution. The need for a strong national brand which is distinctive and differentiates the UK from other countries is as important as ever.

Ensuring the quality of the student experience

Students have more choice than ever before – both from within their own countries as well as overseas study. They have demanding expectations – and we must ensure that we understand and are able to respond to these. This includes all aspects of the student experience, from the application and visa processes; pre-departure and induction; through to the quality of experience whilst studying and living in the UK.

Strategic partnerships and alliances

The dramatic changes in international education suggest a very different landscape by 2011 – one in which both the UK's positioning and many of its markets will depend on strong strategic overseas partnerships. If we are to reach our goals, we must achieve a major step change in this area.

Market diversification and consolidation

It is clear that in the new market context, we need to have a far greater understanding of the countries in which we operate in.

PMI2 sets out to achieve a number of targets by 2011. These targets are to:

- attract an additional 70,000 international students to UK HE, and an additional 30,000 international students to UK FE;
- double the number of countries sending more than 10,000 students per annum to the UK;
- achieve demonstrable improvements to student satisfaction ratings in the UK;
- achieve significant growth in the number of partnerships between the UK and other countries.

The first PMI's success clearly showed the value of integrating the activities and resources of the Government, education institutions from all sectors, and the British Council to position UK education overseas.

Of the 26 successful bids for the PMI2 research grants for 2008 from Malaysia, UM managed to come up on top winning 7 grants. This is followed by USM (6), UTM (3), UPM (3), UKM (2), and 1 each for UMS, Unimas, UTAR, MMU and Sunway University College.

Congratulations to all UM successful bidders and their UK collaborators.

[Successful PMI2 Bids]

	UK Institution	Overseas Partner	Project Title
1	**City University London**	**University of Malaya**	**Advanced planar photonic devices in silica: design, fabrication and optimisation**
2	Imperial College London	Universiti Teknologi Malaysia	Multi-functional membranes for energy applications and CO2 capture
3	University of Nottingham	Universiti Sains Malaysia	Predicting land snail endemism at limestone karsts and Malaysian tropical forests for conservation priorities
4	**University of Southampton**	**University of Malaya**	**High Power Fibre Lasers**
5	Kings College London	Universiti Malaysia Sabah	Evaluation of dietary intake methodology in low income households living in a transitional economy.
6	Queen Mary, University of London	Universiti Sains Malaysia	Fabrication of carbon nanotube filled polydimethylsiloxane (PDMS) composites and its behaviour as Thermal Interface Material (TIM) in electronic packaging
7	**FRSE, University of Glasgow**	**University of Malaya**	**Group Theory and Cryptography**
8	University of Surrey	Universiti Sains Malaysia	Investigations into the anti-cancer properties of Orthosiphon stamineus
9	**University of Southampton**	**University of Malaya**	**Climate change implications for buildings and their technical services in tropical and moderate climates**
10	University of Sheffield	Universiti Kebangsaan Malaysia	A toolkit for antibiotic discovery against B. pseudomallei, the causative agent of melioidosis
11	**University of Nottingham**	**University of Malaya**	**Discovery of novel natural products for controlling bacterial pathogens which block quinolone-dependent quorum sensing**
12	University of Strathclyde	Multimedia University, Cyberjaya	Three-dimensional computer modelling as an aid to urban design and cultural heritage development.
13	University of Aberdeen	Universiti Sains Malaysia	Novel non-symmetric liquid crystal dimers
14	University of Glasgow	Universiti Putra Malaysia	Host Cell response to infectious agents in ruminants, with special reference to Pasteurella multocida
15	University of Sheffield	Universiti Putra Malaysia	Towards a generic methodology for the purification and molecular characterization of multi-protein complexes
16	Manchester Metropolitan University	Universiti Malaysia Sarawak	Towards a culturally sensitive disability studies: Interconnections of disability studies in and across Malaysia and the UK
17	Coventry University	Universiti Teknologi Malaysia	A study of lecturing styles in Malaysia and the UK
18	University of Cambridge	Universiti Putra Malaysia	Improving MgB2 for energy efficient, open aperture MRI
19	University of Kent	Universiti Teknologi Malaysia	The developmental impacts of international dive tourism in Malaysia: sustainable growth or drowning in development?
20	Lancaster University	Sunway University College	Public large screen infrastructure for civic engagement via cell phones
21	Imperial College London	Universiti Sains Malaysia	Phase Formation Studies of ZrO2 Formed by Anodisation of Zr Thin Film on Silicon
22	**Imperial College London**	**University of Malaya**	**Development of a Portable X-ray Laser for Probing High Energy Density Physics Experiments**
23	Imperial College London	Universiti Sains Malaysia	Preparation and Characterization of Calcium Phosphate Cement Reinforced with Biofunctionalized Carbon Nanotubes for Medical Application
24	Sheffield Hallam University	Universiti Tunku Abdul Rahman (UTAR)	Molecular microbiology of a combined farmed freshwater fish and hydroponic system: toward coupled sustainable fish and food plant production
25	De Montfort University	National University of Malaysia (UKM)	Researching Syntactic Development for Malay and Chinese Children in Malaysia & Constructing Syntactic Assessment Tools for Speech & Language Therapy
26	**University of Cambridge**	**University of Malaya**	**Marine sources of short-lived halocarbons and their atmospheric effects**

THE UNIVERSITY OF MALAYA CHANCELLOR AWARD FOR EXCELLENCE

From Left: *Professor Dr. Ir Mohd Ali Hashim, Professor Dr. Mohamed Kheireddine Aroua, Dr. Aishah Abu Bakar, Y.Bhg. Datuk Seri Panglima Mohd Annuar Zaini, DYTM Raja Dr. Nazrin Shah Ibni Sultan Azlan Muhibbuddin Shah, Y.Bhg Datuk Rafiah Salim, Professor Dr. Looi Lai Meng, Ir. Dr. Abdul Aziz Abdul Raman*

The University of Malaya Chancellor Award is given as a recognition and incentive to the academic staff of the university that has proven their excellence in one of the following categories:

- Scientific Discovery or Knowledge Advancement
- Leadership
- Research
- Innovation
- Teaching

This award is hoped to provide the encouragement and motivate academic staff to continuously enhance their excellence in new discovery and knowledge, research and innovation as well as leadership and teaching quality.

QUALIFICATION FOR NOMINATION

1. All categories for award are open to all permanent/contract academic staff of University of Malaya.
2. For all categories, all work/efforts/discoveries/research must be conducted in the University of Malaya. For the Scientific Discovery or Knowledge Advancement and the Research categories, the discoveries or research must given impact to the university and are significant and meaningful to the society and nation.
3. For the Leadership and Teaching categories, application may be submitted by the individual him/herself or through nomination by the Dean or Department/Unit/Division/Program/Project Head or by any member of the academic staff of the university.
4. Academy/Centre Director or Faculty Dean may nominate any individual upon approval of the academy/faculty/centre to the Award Secretariat and provide justification for the nomination. Where more than one nomination is submitted, the academy/faculty/centre must state the order of preference.

AWARD ITEMS

The award in every category will consist of RM 30,000.00 cash, gift tokens and certificate of merit.

SCIENTIFIC DISCOVERY OR KNOWLEDGE ADVANCEMENT

Scientific Discovery

Scientific discovery or new knowledge is defined as a new discovery of, including but not limited to a process or material or substance or flora or fauna and/or new micro-organism or object or phenomena which has never been discovered or uncovered or identified before anywhere. The discovery must be in a form or manner that contributes significantly to scientific development for the benefit

of humanity.

Knowledge Advancement

This means the enhancement of concepts or theories or the formulation of new thinking or fresh outlook on existing knowledge through interpretation, articulation and assimilation which are novel and creative based on existing conditions and needs.

-----No Winner----

LEADERSHIP AWARD

This will be awarded to the individual that displays the qualities of a dynamic, outstanding and excellent leader and the characteristics of a person of honour and integrity. He or she must be at the forefront of the academic arena at the national and international levels and has contributed towards the development of the university.

-----Professor Ir. Dr. Mohd. Ali Hashim

RESEARCH AWARD

This will be awarded for individual excellence in research and outstanding leadership and management of research projects and success in producing high quality research that gains national and international recognition. Other criteria are the ability to procure research grants from external bodies, the supervision of higher degree candidates, involvement in academic journals and bodies and as an external assessor and examiner of theses.

-----Professor Dr. Looi Lai Meng

INVENTION AWARD

An invention is defined as a creation which is the result of and involves an innovative and creative idea, possesses an application and usefulness for industry and society in general; resulting in a product which can be commercialised. Nominees are required to present confirmations of the genuineness of their inventions.

-----(Shared by) Professor Dr. Mohamed Kheireddine Taieb Aroua & Ir. Dr. Abdul Aziz Abdul Raman

TEACHING AWARD

This will be awarded to the individual who teaches using methods which are novel and effective, using up-to-date material and performs thorough preparations for lectures, is always punctual, avoids from canceling lectures, conducts coursework evaluation and examination according to set schedule and consistently gets very good evaluations by students. He or she displays good character and spirit while teaching, finds a large class size a welcomed challenge and is ever prepared to take on additional duties.

-----Dr Aishah Abu Bakar

Integrated Decision Support System for Flood Management using Artificial Neural Networks

Research Team: Dr. Ramani Bai Varadharajan, Prof. Dato' Dr. Azizan Abu Samah, Faridah Othman & Gopinath Ramadas
Department of Civil Engineering, Faculty of Engineering

Synopsis

A model prototype of spatial decision support system is presented for flood operation, estimation, control and decision making. This model integrates a geographic information system with a database management subsystem (meteorological, hydraulic and hydrological data monitoring system) for flood and control and operation. Floods are complex processes characterized by spatial and temporal variations. The understanding of these processes and the capabilities to encapsulate them in terms of numerical models are of crucial importance for flood prediction, estimation, control and mitigation. An explicit artificial neural network is designed for flood operation and control from a reservoir. The ANN results are evaluated with flow data from Batu Dam located in Klang river basin. The results have shown perfect validation with the designed parameter to 89% efficiency. Thus an integrated model for decision making for flood is presented for co-ordinated flood control operations of Klang Basin. The network was designed by proper data mining process. This model can be updated as the flood event progresses.

Gold Medal at Malaysia Technology Expo 2008 (MTE 2008)

StegCure

Research Team: Por Lip Yee, Lai Wai Kit, Cheah Xiang Xing, Delina Beh Mei Yin
Department of Computer System & Technology, Faculty of Computer Science and Information Technology

Synopsis

StegCure is an information hiding application that hides the existence of the communication by embedding the secret contents (include string, text, image) into an unsuspicious medium, usually is the multimedia file which in audio, video or image format). The system can hide secret messages in digital pictures (taken with digital camera or scanner) without visibly altering the original pictures. StegCure offers a combination of three different methods into a single system that is able to perform steganography on GIF image. The image block is the potential component in GIF image for steganography purpose. Manipulation of the bits in the image block could affect the colour schemes of the GIF image, but it will not cause any distortion in the GIF image. For example, if a user modifies a document file, he will not change the file format or the file properties in the bit level. The main purpose of implementation of steganography technology on GIF is to conceal the secret message into the color that could draw less suspicion. Therefore, StegCure fulfils the ease of use in information hiding and provides high security in the cover medium which uses a complex embedding scheme in the backend algorithm. This mechanism protects secret information in a communication from crackers or hackers. The main objective of StegCure is to avoid the accessibility of unauthorized users. The potential target users are those who want to secure a communication channel while maintaining high privacy in exchanging information.

Gold Medal at International Invention, Innovation and Technology Exhibition (ITEX 2008)

OrchidShield Viral Protection Solution

Research Team: Assoc. Prof. Dr. Jennifer Ann Harikrishna, Prof. Dr. Rofina Yasmin Othman, Hee Teng Wei, Adriya Dzulkurnain
Institute of Biological Sciences, Faculty of Science

Synopsis

OrchidShield is a novel, low cost product that provides protection against virus when applied to orchid plants. The product has been specially developed for use on tissue cultured materials during potting, which is the stage at which they are most vulnerable to virus. There is currently no equivalent product in the market either in Malaysia or elsewhere.

Gold Medal at International Invention, Innovation and Technology Exhibition (ITEX 2008) Gold Medal at International Invention, Innovation and

Wedding Arch III: A Mobile Compliant Web-Based Comparative Analysis Decision Support System

Research Team: Por Lip Yee, Boey Rui Fang, Ang Tan Fong, Amirrudin Hj Kamsin, Liew Chee Sun
Department of Computer System & Technology, Faculty of Computer Science and Information Technology

Synopsis

Wedding Arch III (an enhanced version of Wedding Arch) or WA3 is a mobile compliant web-based comparative analysis decision support system which manages to guide and help budgetary couples to plan for their wedding. WA3 provides and generates results and graphs which founded on the best price for wedding apparels and available services from the database of the system based on both rule based and deduction techniques. The system will return a few packages to the budgetary couples once it matches the preferences and the budget of the couples based on a new proposed algorithm.
Besides, the WA3 does provide and facilitate the budgetary couples a platform to personalize their goods when the suggested packages which generated by the system does not fit them. The system does offer a platform for the budgetary couples to direct contact vendors if they are interested with the product which offered by the vendors. The budgetary couples will not be given any charge when using the system.
WA3 also serves as portal for vendors to advertise goods. Beside, Vendors are able to obtain the competitors prices (sensitive information) and strategize their prices accordingly. However, only the highest, lowest and the average prices for each category will be disclosed as general information. Vendors' information will always keep as secret.

Gold Medal at Malaysia Technology Expo 2008 (MTE 2008)

Hydraulic Regenerative Braking Kit

Research Team: Assoc. Prof. Dr. Mohd Hamdi Abdul Shukor, Bernard Saw Lip Huat, Wong Kun Siong, Ng Bee Ling
Department of Engineering Design and Manufacture, Faculty of Engineering

Synopsis

Hydraulic regenerative braking kit is a modular adds on device which capable to improve fuel efficiency, promote energy saving and reduce harmful emission relative to conventional vehicles. It's design to recapture wasted braking energy(heat & sound) & reduce the maintenance cost of the vehicle tremendously.

Gold Medal at International Invention, Innovation and Technology Exhibition (ITEX 2008)

A Trans Disciplinary Pedagogical System

Research Team: Dr. Selva Ranee Subramaniam, Mohd Helmi Riza Mohd Zin, Ong Jiin Me
Department of Mathematics and Science Education, Faculty of Education

Synopsis

An innovative software which is designed for the pedagogical process recognizes the user, sensitive to the user's learning abilities, selectively provides the user with different learning materials in a variety of media, monitors the user's critical thinking path and interacts based on the user's cognitive and affective modes.

Gold Medal at International Invention, Innovation and Technology Exhibition (ITEX 2008)

DiagnoCARD - A Mutation/Variant Screening System for IBD

Research Team: Dr. Chua Kek Heng, Prof. Dato' Goh Khean Lee
Department of Molecular Medicine, Faculty of Medicine

Synopsis

Inflammatory bowel diseases could affect any part of the gastrointestinal tract. DiagnoCARD is a complete PCR-based detection system used to screen mutation/variant happen in NOD2/CARD15 gene of an individual which might lead to development of Inflammatory bowel diseases. The kit could be used to screen the transmission of the mutations in generation pedigrees.

Grand Prix 1st Runner-up, Best Invention of the Pacific Rim & 3 Gold Medal
Gold Medal at Invention & New Product Exposition (INPEX 2008)

Development of Polyurethane Oligomer Derived from Palm Oil Polyol for Application in Restorative Dentistry

Research Team: Assoc. Prof. Dr. Noor Hayaty Abu Kasim, Prof. Dr. Gan Seng Neon, Fadhel Alsanabani, Assoc. Prof. Dr. Zamri Radzi, Dr. Noor Azlin Yahya, Dr. Nor Himazian Mohammed, Rohana Ahmad, Nurshafiza Shahabudin
Department of Conservative Dentistry, Faculty of Dentistry

Synopsis

Polymer is widely used in restorative dentistry for various applications, such as, restorative fillings materials, pit and fissures sealants and luting cements. In general the commercial dental resin composites mainly comprised of filler and resin matrix. The common monomers used in resin composite for dental application are Bis-GMA (Bisphenol-A glycidyl dimethacrylate, UDMA (Urethane dimethacrylate) as base monomer/oligomer and TEGDMA (Triethylene glycol dimethacrylate) and HEMA (Hydroxyethyl methacrylate) as diluents monomers. These methacrylate-based resins have shortcomings in their mechanical properties especially fatigue resistance. This drawback cause poor clinical performance of resin composite thus the long term durability of these types of restorations can be compromised.

The monomer is considered to be the backbone of resin composite; therefore, the development of new monomers is a continuing area of research to improve their final properties. A prototype, branched oligomer polyurethane, has been developed to produce a highly crosslinked density polymer. This new polyurethane oligomer is synthesized by reacting palm oil polyol with excess amount of isocynate to produce polyurethane pre-polymer (CNO terminal), then hydroxymethacrylate was added to produce polyurethane with acrylate terminal (functional group C=C). The resultant polymer has soft segment polyol and flexible urethane linkage which is expected to exhibit improved fatigue resistant properties.

Gold Medal at Invention & New Product Exposition (INPEX 2008)

An Economical Solution: Development of Pylon in Transtibial Prosthesis

Research Team: Dr. Noor Azuan Abu Osman, Hanie Nadia Shasmin, Dr. Lydia Abdul Latif, Prof. Dr. Ir. Wan Abu Bakar Wan Abas
Department of Biomedical Engineering, Faculty of Engineering

Synopsis

The objective of this study is to develop low priced pylon by replacing the conventional material; Titanium, Stainless Steel to bamboo. Bamboo materials used in this project is a species of Bambusa Heterostachya, age 3. The bamboo culms with 30 mm diameters were sawn into 200 mm length; the maximum length of below knee pylon. The first step to produce bamboo pylon is to wipe and dry in air for a few days at 30 C. Laminates of this natural composite material were produced following the method in Japanese Agriculture Standard (JAS: SIS 7, 1987) so that the superior properties such as low modulus of elasticity, lesser durability were appropriately taken care of. The manufacturing process of prosthetic reformed bamboo consists of two main procedures. Firstly, the culms of raw bamboo were cut into the required sizes. Then, the bamboo was soaked into hot steam to make them soft enough so that the shape can be altered. The heat steam not only kills the moth inside but also carbonizing the strips. The bamboo pylon then was tested under ASTM D 3410 standards. As compare to the mechanical properties of these materials, bamboo is expected to be a great new tube adapter component. The bamboo is two times stronger than Aluminum and three times stronger than fiber reinforced plastic.

Gold Medal at Invention & New Product Exposition (INPEX 2008)

S2MS: Secure Short Messaging System

Research Team: Nor Badrul Anuar Jumaat, Ainuddin Wahid Abdul Wahab, Dr. Omar Zakaria, Aliff Syazwan Othman, Lai Ngan Kuen
Department of Computer System & Technology, Faculty of Computer Science and Information Technology

Synopsis

Secure Short Messaging System or known as S2MS is a Java application. It encrypts a content of Short Message Service (SMS) on a mobile phone and sends the message through Global System for Mobile Communication (GSM). As a result, this application provides confidentiality of a message. This implies that SMS message which can contain secret information such as bank account number or ATM PIN number will not be disclosed through GSM as the message being sent or received is in the encrypted form which is not readable.

In order to use this application, it must be installed on both sender and receiver mobile phone respectively. Their mobile phones must support Java MIDP 2.0. The encryption method is based on a shared secret password between a sender and a recipient. There are three types of encryption algorithms that being used in this application such as AES, 3DES and Blowfish. When the receiver receives the encrypted message, he or she needs to decrypt it by using same password used by the sender in order to read the original message.

Gold Medal at International Invention, Innovation and Technology Exhibition (ITEX 2008)

A Novel EZ mPCR for Salmonella Detection

Research Team: Prof. Dr. Thong Kwai Lin, Dr. Chua Kek Heng, Cindy Teh Suan Ju, Dr. Patrichia Lim, Prof. Ong Kok Hai
Institute of Biological Sciences, Faculty of Science

Synopsis

The invention describes a multiplex PCR test that uses a lyophilized PCR reagent mix (EZ mix) for the simultaneous detection of Salmonella spp., S. typhi and S. paratyphi A. It involves the addition of 5 ul of extracted DNA from suspected samples to the EZ mix in a microfuge tube followed by conventional PCR in a thermocycler. Confirmation of Salmonella can be determined by agarose gel electrophoresis. The presence of Salmonella, S. typhi or S.paratyphi A is indicated by the presence of the respective amplicons. An internal amplification control is incorporated into the EZ mix to eliminate false negative results. The detection method takes only 4 hours starting from a single suspected bacterial culture as opposed to 3-5 days using conventional culture methods.

Gold Medal at International Invention, Innovation and Technology Exhibition (ITEX 2008)

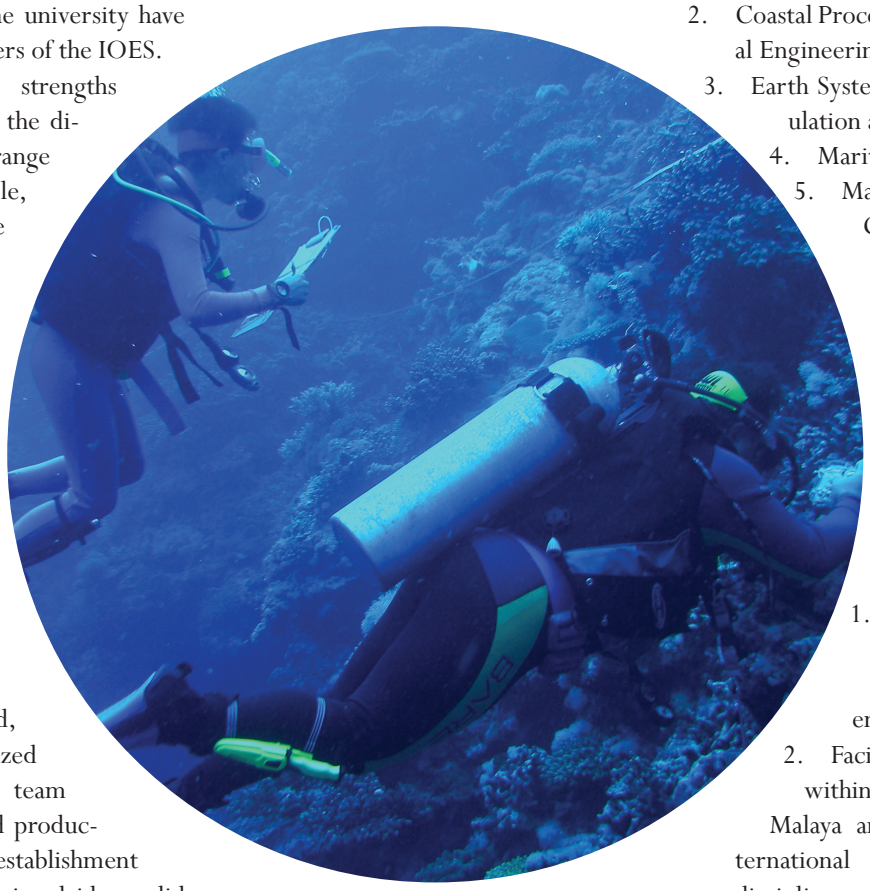
The Institute of Ocean and Earth Sciences (IOES)

The Institute of Ocean and Earth Sciences (IOES) has its roots in the University of Malaya Maritime Research Centre (UMMReC), which was established in 2003 to coordinate and lead all research activities and consultancies in marine and maritime research at the University of Malaya. More than 70 staff members of the university have registered as members of the IOES.

The main strengths of UMMReC lie in the diversity, depth and range of expertise available, particularly the rare expertise in maritime law and policy, political science and international relations, socio-economics, marine geology, mangrove ecology, marine biotechnology and marine genomics. These talents have been garnered, welded and organized into a formidable team over four active and productive years since the establishment of the centre. Having laid a solid foundation, the time had arrived to take UMMREC to a new level in its journey towards excellence, a phase of transformation, amalgamation and growth.

On 20 July 2007, a group of 15 UM researchers met, discussed and agreed to the establishment of the Institute of Ocean and Earth Sciences at the University of Malaya. This meeting was organised in response to the suggestion by the Vice-Chancellor who felt that it is timely for UM to set up a National Centre for Ocean and Earth Sciences. Until then, Ocean and Earth Science research at UM was also conducted by members of other research centres like the Antarctic Research Centre, the Centre for Climate Change and also independently in various departments and faculties within the university. The time has arrived for a second amalgamation towards a larger institute with a larger agenda.

There is presently no such institute in Malaysia. This Institute of Ocean and Earth Sciences (IOES) at the University of Malaya will conduct research and undertake education and technology development in ocean and earth sciences. This institute will cater to the priorities of the Ministry of Science, Technology and Innovation (MOSTI) under its "SEA TO SPACE" implementation plan and to the Ministry of Higher Education's plan to set up centres of excellence in research and education. The research mission of this institute is to achieve international excellence, lead in national and regional research programmes, and to be Asia's leading academic centre for ocean and earth sciences.



The Institute of Ocean and Earth Sciences (IOES), University of Malaya, was approved by the University of Malaya Management on 23 October 2007, and officially launched on 17 January 2008. The function of the Institute is three-pronged: Research, Academic Training and Technology Development.

The Institute is organised into nine Research Units:

1. Marine Living Resources, Biotechnology and Ecosystems Studies
2. Coastal Processes Studies and Coastal Engineering
3. Earth System Observation & Simulation and Climate Change
4. Maritime Law and Policy
5. Maritime Culture and Geopolitics

The UM-IOES will be the leading centre for Ocean and Earth Sciences in the region through activities achieved under the following objectives:

1. Initiate and undertake various aspects of ocean and earth science related research.
2. Facilitate collaboration within the University of Malaya and with local and international institutions in multi-disciplinary research, training and education, and technology development.
3. Facilitate and provide postgraduate education and professional training.
4. Provide advice and consultancy for management and policy decisions on sustainable development of coastal and ocean resources, and the environment.
5. Publish and disseminate research outputs in journals, monographs and bulletins.
6. Facilitate in the development of new products and patents arising from ocean and earth science research, in collaboration with the government and industries.

The Institute of Ocean

and Earth Sciences has brought on board new expertise, specifically climate change scientists and social scientists specializing in maritime history, culture and geopolitics. Our new combined research strengths, unique in the Malaysian scenario, will allow IOES to integrate multidisciplinary approaches to the study of fundamental scientific problems and enable us to discover new and novel products and processes in our oceans.

Two of the world's leading institutions in ocean and earth sciences, the National Oceanography Centre Southampton (NOCS) and the Korea Ocean Research and Development Institute (KORDI) will be our partners in the development of the IOES, especially in open ocean research. Collaboration has also been established with other well known oceanography institutions and marine research laboratories within and outside Malaysia, as well as with government institutions like the Marine Parks Department of the Ministry of Natural Resources and Environment.

Our Marine Research Station jointly managed with the Marine Parks of Malaysia, Ministry of Natural Resources and Environment (NRE), on Tioman Island as well as the proposed Research Station at Bachok, Kelantan, will provide the gateways to Ocean Research in the South China Sea. This will further enhance the capabilities of the IOES to make the quantum leap towards an Institute of Research Excellence in Ocean and Earth Sciences.

Management Team

Director: Professor Dr. Phang Siew Moi
Deputy Director: Assoc. Prof. Dr. Azhar Hussin

Research Unit Heads:

1. Marine Living Resources, Biotechnology and Ecosystems Studies: Professor Dr. Chong Ving Ching
2. Coastal Processes Studies and Coastal Engineering: Assoc. Prof. Dr. Roslan Hashim
3. Earth System Observation & Simulation and Climate Change: Professor Dr. Datuk Azizan Abu Samah
4. Maritime Law and Policy: Assoc. Prof. Datin Dr. Mary George
5. Maritime Culture and Geopolitics: Assoc. Prof. Dr. Danny Wong Tze Ken

The launch of the Institute of Ocean and Earth Sciences (IOES), University of Malaya was officiated by Yang Berhormat, Dato' Dr. Awang Adek Bin Hussin, Deputy Minster of Finance, Malaysia at the Dewan Mohamed Suffian, Law Faculty, University of Malaya. On that day, two MoUs were signed with the Korea Ocean Research and Development Institute (KORDI) and the National Oceanography Centre Southampton (NOCS). In addition, an exhibition which highlighted the achievements of IOES researchers was held. Amongst the exhibits were the research on: SESMA (Scientific Expedition to the Seas of Malaysia), Dugongs Conservation Project, Bioshield (Eco-engineering for shore protection) and the proposed Marine Research Station, Bachok, Kelantan. Prof. Dr. Andrew Roberts, Head, School of Ocean and Earth Science, University of Southampton and Associate Director of the NOCS presented a plenary lecture on "Frontiers of Oceanography: Highlights from the National Oceanography Centre, Southampton, U.K."

***Left-accross**: IOES scientists surveying a coral reef at Layang-Layang*
***Above**: Yang Berhormat, Dato' Dr. Awang Adek Bin Hussin witnessed the signing of the MoU between the University of Malaya and National Oceanography Centre Southampton (NOCS)*
***Left**: Yang Berhormat, Dato' Dr. Awang Adek Bin Hussin witnessed the signing of the MoU between the University of Malaya and Korea Ocean Research and Development Institute (KORDI).*

L'Oréal Malaysia For Women in Science Fellowships 2008

Kuala Lumpur, 15th May 2008: L'Oréal Malaysia continues to provide financial assistance of RM20,000 each to 3 young female researchers to pursue their scientific project in Malaysia. This is L'Oréal's number one corporate commitment to provide encouragement, support and recognition to women in the field of science.

L'Oréal For Women in Science emphasizes and demonstrates the importance of participation of women in the development of science in today's world. As recognition to the contribution of Malaysian women in the nation's scientific progress, the program's national awards aim to support their scientific research and highlight their significance in the field of science.

This program is also supported by the Malaysian National Commission for UNESCO and in partnership with the Academy of Sciences Malaysia, the Ministry of Higher Education and the Ministry of Science, Technology and Innovation.

L'Oréal Malaysia is extending to Malaysian women under the age of 35 years, who are PhD holders and currently pursuing research study in the field of Life Sciences to send in their applications. Successful applicants will be awarded fellowships based on their research proposals that will significantly contribute to the development of sciences and will aptly help Malaysia progress smoothly towards a developed country and they in turn evolve as the new generation of women leaders in the field of science.

Registration for application of fellowship will be open from 15th May till 31st August. Application of proposed study must be submitted with an application form, which can be obtained from the Secretariat of the Malaysian National Commission for UNESCO or at www.loreal.com.my and to be addressed to the Jury President for submission.

For more information, applicants can contact UNESCO at tel. no. 03-88846122. http://www.loreal.com.my

http://www.ippp.um.edu.my