



# BULLETIN

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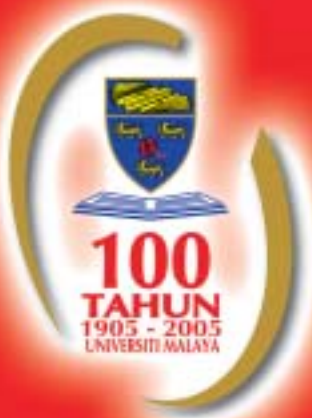
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**Ideas, Innovations  
& Inventions**

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Please convey your comments, suggestions for improvements regarding issues on R&D to the editor. Articles may be edited for clarity and space before publication.

*On the cover: White Knight cockpit and engines, the carrier for Space Ship One 2004*

soap bubbles

## Guest Editor

Dato' Dr.

**Mohd. Ariffin Hj. Aton**President and CEO  
SIRIM

The history of our world is, to a large extent, the history of ideas, inventions and innovations. Some are small and incremental improvements while others are radical and transformational breakthroughs. The steam engine, the internal combustion engine, the telegraph, the telephone, the light-bulb, the airplane, photography, small pox vaccine.....the list is long and right at the root of each and everyone of them is always the genius of an idea.

Ideas are at the root of all innovations. Without idea, no inventions are made, no breakthroughs discovered and no businesses created. Hume spoke of idea as a perception of mind which involves thinking of something without actually experiencing it. Plato talked about idea as the objects of dialectical knowledge. Kant later applied the term "dialectic" to more narrowly define patterns of thought.

Novel they may sound, ideas are of no value unless they can be represented as functional objects by careful logical reasoning. These functional objects can be new theoretical knowledge, new improved product or process design, new process, new product or a new way of doing business.

Inside the minds of millions of engineers, scientists, technologists and entrepreneurs, there are streams of ideas that take shape every day. Some are sparks of brilliance and some a result of systematic thinking. But only a tiny fraction of it results in anything worth serious consideration. In DuPont, for example, it can take as many as two hundred and fifty raw

to yield one marketable product. Or, as someone in the pharmaceutical industry puts it, "Most research scientists do not produce more than one winner in the course of an entire career, but that does not mean they are lousy scientists".

Perhaps for the same reason, only about a tiny three percent (on average) of the new entrepreneurial ideas proposed get funded to become a commercial success. How does one determines which ideas are going to make it? This is where the art (and science) of risk assessment and evaluation comes in. As Joseph Miller; the former senior vice president of research and development of DuPont puts it, "Innovation is actually risk management". People invest in ideas for high monetary returns in the future. The risk involved is very high but so is the return. Most people admire good ideas; they like to talk about ideas and want to reward them. But most of them get sweaty palms when it comes to betting bucks on the bay.

However, ideas can be very powerful when combined with other ideas. Most breakthroughs have been achieved through this recombinant process. Organizations like 3M, GE and HP have thrived on this very process by allowing ideas to flow freely across the business and organizational boundaries without any barriers. Breakthroughs are a phenomenon of complex networks of people, objects and ideas that link isolated groups, industries and institutions to integrate previously unrelated viewpoints and technologies to resolve new problems. This is how most inventions are created.

Invention is the ultimate source of all that is new. Every gizmo, gadget, technique or tool that we use is born in a flash of inspiration in somebody's head at same point in time. As such, it is the highest -value activity that any individual or company can engage in.

But what really drives invention? How does the mysterious act of invention happen? Where does the mental leap, the breakthrough comes from? What makes a person, an organization or a society more inventive than another? According to the nineteenth century German philosopher, Arthur Schopenhauer, the genius resides in the imagination. As he puts it, "talent hits a target no one else can hit; genius hits a target no one else can see". To invent, one must be able to see beyond the obvious. It is through this act of imagination the need is identified and thus begins a complex yet systematic process of finding a breakthrough, a process through the steps of creating possibilities, pinpointing problems, detecting barriers, recognizing patterns, applying analogies and applying insights among others.

But inventions alone are often not sufficient in creating commercial value. It must be taken to the market through the most challenging process of innovation, creating new products, processes and even new markets. As is in the words of Joseph Schumpeter, "the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumer goods, new methods of production or transportation, the new markets, the new form of organization the capitalist enterprise creates". Innovation is the very essence of entrepreneurship.

Often inventors fail to become great innovators. Ask most people who invented the light bulb, and they will promptly provide the wrong answer: Thomas Alva Edison. Truth is, the famous inventor's 1879 debut of his incandescent light trailed others by decades so why does he get all the glory? Mostly because of what he did next. To get his creation to the masses, Edison and his team of engineers in Menlo Park, N.J., spent years building the entire electric system, from light sockets and safety fuses to generating facilities and the wiring network. Only then did the electric light flare into the innovation that lit the world. The telephone of Alexander Graham Bell had the story before it hit the market as a viable solution.

In short, Edison and Bell beat all his predecessors at one crucial task: managing the whole process of innovation, from light-bulb moment to final product.

Sure, it is easy to get lucky once in a while. The real trick is doing it over and over again. Today's corporations must manage the process of innovation effectively and innovate continuously to stay ahead of the competition. Managing innovation means cultivating an environment where lightning can strike twice; inventing and (taking it to the market) innovating, a task extremely difficult even when life today is much easier after 125 years since the light-bulb was taken to market.

### Ideas, Inventions and Innovations.

**Mohd. Ariffin Aton**

Guest Editor

Volume 5 No 1





Assoc Prof  
Dr. Azirah Hashim

Associate Professor Dr. Azirah Hashim is the Dean of the Faculty of Languages and Linguistics and a member of staff in the Department of English Language. Her research interests include Genre Analysis, Academic and Professional Discourse and Systemic Functional Grammar. She has been involved in international projects on Generic Integrity in Legal Discourse in Multilingual and Multicultural Contexts together with researchers from thirteen other countries and World Englishes and Miscommunication: A Cross-cultural Distance Learning Project involving researchers from seven countries. She is also the Chief Editor of the Journal of Modern Languages.

## LINGUISTIC APPROACHES TO ACADEMIC DISCOURSE

**Associate Professor Dr. Azirah Hashim**

Faculty of Languages and Linguistics, University of Malaya

This paper will outline the vastness and complexity of generic, textual, lexico-grammatical and intercultural issues involved in academic writing as a field of linguistic research. The study of academic discourse has been closely linked with developments in the teaching of English for Academic Purposes. With the expansion in the international use of English, there has concurrently been an increase in the preparation of non-native speakers to study English. Four main areas have seen this expansion. Firstly, in English speaking countries such as the United States, the United Kingdom and Australia which have seen an influx in students from other countries. Secondly, in countries which used to be colonised such as Hong Kong, South Africa and Singapore, where English has been retained as the language in academic contexts even if it is not the national language. Thirdly, in countries such as Malaysia, China, Japan and Western Europe where English has no official status but is emphasized. And lastly, countries in the former Soviet bloc which are turning to English as a means of moving away from the use of Russian (Flowerdew, 2002:1).

The written genres of the academy have attracted attention from a number of disciplines such as applied linguistics, rhetoric and sociology. There is a recognition that understanding the disciplines involves understanding their discourses. There are two main reasons for this. Firstly, texts are socially

produced in particular communities and depend on them to make any sense. They reveal how knowledge is constructed, negotiated and conveyed persuasively. Secondly, academics spend a major part of their working life writing, for example, they publish, they communicate with others in their field and they communicate with students.

Over the last twenty years, there has been a large number of studies on academic writing with a focus in particular on the research article, its structure, social construction and historical evolution. Its role as a vehicle for the dissemination and generation of knowledge and as an indicator of academic achievement makes this genre command the most attention from discourse analysts. The earliest work in academic discourse was carried out in the 1960s by Halliday, McIntosh and Stevens. This study explored the formal features of language varieties or registers using a quantitative approach.

Subsequently, a more socially situated analysis of genres has been given considerable attention. The most well known was the theory of language developed by Halliday (1978, 1994) which emphasizes the relationship between language and context. At about the same time, Swales (1990) and Bhatia (1993) developed a narrower (in the sense that it focused on specific genres) and deeper (in the sense that it sought to investigate communicative purposes and not just formal features) approach and put forward models for academic, business and legal genres. Their work is very much applied in nature with pedagogical implications. A number of studies have concerned themselves with the overall organization of the various parts of the research article such as the introduction (Swales, 1981, 1990; Swales and Najjar, 1987), the results section (Brett, 1994; Thompson 1993), and discussions (Hopkins and Dudley Evans, 1988; Hashim, 2001).

While Swales and his followers have focused on the structure and typical linguistic realizations of certain genres, another approach referred to as the New Rhetoric school has emphasized the flexible and dynamic nature of genres. Bazerman (1987) traces the evolution of the scientific articles highlighting that the rhetorical forms are products of social needs. His study shows how production of texts evolved in order to negotiate scientific knowledge at differing times and places. In his analysis of the Philosophical Transactions of the Royal Society of London which was founded in 1665, he found that the journal which was initially a journal for a general audience, gradually became more selective for professional interest and quality. Atkinson (1996) in his analysis of research writing from the seventeenth century found that papers became less affective and more focused, more informational rather than narrativelike over a period of time. Berkenhotter and Huckin (1995) in their analysis of biology research articles since 1944 argued

that the increasing promotion of results was brought about to accommodate the increasingly selective reading by researchers who are inundated with an expansion of information in the sciences.

Another approach in genre analysis has its roots in Hallidayan linguistics and provides a systemic functional perspective on language description. Academic discourse is analysed for its structural characteristics, its crucial semantic attributes of the structural elements and its lexico-grammatical patterns (Hasan, 1984; Halliday, 1985, 1994). In examining the generic structures, the values of the field, tenor and mode (the components of the contextual configuration) determine the range of textual structures available within a genre. Thus, different social situations will produce different genres because each social situation has its own configuration of values.

Different paradigms have been used by other discourse analysts researching on academic discourse. Contrastive rhetoric which originated from Kaplan's work in 1966 examines the similarities and differences between two languages and how the first language may affect the way writers express themselves. Rhetorical patterns of academic writing in the humanities in Czech (Cmejrkova, 1996) and the sciences in Malay (Ahmad, 1995) are two examples of studies that have been conducted in languages apart from English. Corpus linguistics which is concerned with the collection and analysis of large amounts of data using computers has also been adopted in the analysis of academic discourse. An example is the study of the forms of hedging which is central to academic writing in that it expresses possibility rather than certainty and collegiality rather than presumption (Hyland, 1998).

This paper seeks to show very briefly how academic discourse has been examined in the last two decades. Each approach is useful for text processing with differing emphasis on context, structure and linguistic features and presents us with fascinating insights into academic writing.

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## MY WORK AS A MALAYSIAN SOCIOLINGUIST

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Sociolinguistics is the study of language in society. My first major piece of research as a sociolinguist was to study the language choices of a minority ethnic group (only about 700 people) to determine if the ethnic language was threatened and if so why this was occurring. This three year research of the Malaysian Sindhi community culminated in not only my PhD thesis but the publication of book entitled *The Sindhis of Malaysia: a sociolinguistic account* (David, 2001). Since then I have moved on to study the language choices of other speech communities in Malaysia, usually together with a researcher from the ethnic group being studied so that both an insider and outsider view could help create a balanced analysis.

The communities studied are:

The Sikh community in Klang (David, Naji and Sheena, 2003)

The Pakistani community in Machang, Kelantan (David, 2003)

The Tamil community in Kuala Lumpur (David and Naji, 2003)

The Portuguese community in Malacca (David and Noor, 1999)

The Malayalee community: a case study of 2 Catholic families in Kuala Lumpur (David and Nambiar, 2002)

Studying minority communities and their language choices can reveal the linkages between the social, political and education milieu and language choices. Moreover, it can reveal that theories held to be true are not universally applicable. For instance where Milroy (1987) argues that close and dense networks result in language maintenance many of the communities studied in this site revealed that language shift had occurred despite the maintenance of close and dense networks among community members. Local studies thus contest theories arising from social contexts in the west.

In addition to researching the question whether the ethnic language is threatened I have also examined whether the loss of an ethnic language results in a loss of the ethnic culture. This is a fairly controversial issue as some linguists believe that a loss of language results in a loss of culture while others disagree (see David, 1999).

In order to expand the research sites I invited colleagues in Brunei, Singapore, United Kingdom and Malaysia to examine specific methodological issues on language maintenance and language shift (e.g. see Sercombe, 2002; Saravanan, 2002; Li Wei, 2002). This resulted in *Methodological and Analytical Issues in Language Maintenance and Shift Studies* which I edited (David, 2002). Malaysian colleagues were also invited to contribute articles on case studies of language choice and shift among different ethnic groups in Malaysia. These were published in a guest-edited issue of the *International Journal of the Sociology of Language* (2003).

Code switching is the use of more than one language in an utterance and is a phenomena in many multilingual societies. Why

Professor Dr. Maya Khemlani David is an Honorary Fellow of the Institute of Linguists, United Kingdom and a Research Fellow with UPSI, Malaysia. Dr David has a special interest in the role of language in establishing and maintaining national unity. She is currently attached to the Faculty of Languages and Linguistics, University of Malaya where she teaches Communication within and across Cultures; Language and Conflict Resolution and Language and Human Rights. Dr. David is the Chair of the Editorial Executive Board of The International Scope Review, a multi-disciplinary web-based journal, with 16000 readers. Dr. David has presented over 60 papers in 19 countries and written about 55 papers which appear as chapters or journal articles in both local and internationally refereed publications. She has edited The Teaching of English in Second and Foreign Language Settings: Focus on Malaysia (2004, Frankfurt: Peter Lang) and Methodological Issues in Language Maintenance and Shift Studies (2002, Frankfurt: Peter Lang) and written The Sindhis of Malaysia: a Sociolinguistic Account (2001, London: Asean). In 2003 she was invited to guest edit an issue of Multilingua on "Code Switching in Malaysia" and The International Journal of the Sociology of Language on "Language Maintenance and Shift Studies in Malaysia." She is current co-editing Language and the Media (2005, Frankfurt: Peter Lang) and is co-writing a book Language Maintenance and Shift Studies in Malaysia, Singapore and Brunei for Pelgrave, United Kingdom.



Prof Dr. Maya Khemlani David

code switching occurs and the functions of the different languages used by a speaker was another area of research. In language choices and code switching in service encounters in Kuala Lumpur it was found that both the buyer and seller constantly accommodated each others language choice yet in other studies conducted in Tunisia only the seller accommodated (see David, 1999). Most studies on code switching argue that phenomena manifests in informal settings yet in a formal setting, Malaysian court rooms it was found that strategically motivated reasons triggered code switching (David, 2003a). Malaysian colleagues were invited to examine code switching in other settings (see Zuraidah, 2003 on code switching among Kelantanese; Kow 2003 on code switching among children and Jariah 2003 on code switching as a strategic power tool in a government department) These appeared in a guest edited issue of *Multilingua* entitled *Code Switching in Malaysia* (David, 2003).

I moved on to study speech acts (what we do with our talk) of Malaysians with a view to determining how Malaysians performed a particular speech act and moreover to determine if ethnic differences in discourse or talk norms existed. To this end I examined the speech act of greetings in Malaysia. Note for instance how, "Have you eaten?" or "*Sudah makan?*" have become a common form of greeting among Malaysians (for more on the Malaysian greeting norms see David, 2002)

I also examined the different ways Malaysian responded to compliments. The compliment "You look good" was used on a

number of subjects and it was found that the Malay sample were more likely to negate or alternatively provide an elaboration when complimented while the Chinese and Indian sample tended to accept the compliment. Working together with a member of the ethnic group, disagreements as verbalized by Malay undergraduates (see Jariah and David, 1996) and the speech act of directives in legal offices in Kuala Lumpur (David and Kuang, 1999) were examined. The speech act of requests by Malaysian academicians were examined in David, Kuang and Zuraidah 2002.

My interest has more recently moved to a specific domain –the home domain and talk within families. I was and am now moving from a microscopic analysis to making linguistic links with sociological theories and frameworks. This resulted in a paper on the ability of immigrants, who despite moving away from their ethnic language found strategies to communicate across generations (David, 2004b). A comparative approach using two closely related ethnic minorities focusing on the same research objective resulted in David and Baljit, 2004. In this study code switching was seen to be a strategy used in both communities to communicate with grandchildren who had lost their mother tongue.

My interest in families and their communication issues and the role of gender and discourse within the family resulted in *The Discourse of Women: the Language of Peace* (David, 2004c) and *The Language of Powerful Women* (David and Yong, 2004). Even the language of young Malaysians for whom English has become a first language and their creativity in the creation of new lexical items/vocabulary was studied (David, 2000). More recently, I have been invited to be a member of an multidisciplinary international research team comprising 5 countries to study the relationship between grandparents and grandchildren. My role as the sociolinguist in the team is to examine communication norms across generations.

This being the year of the family and the family being the core of a community I am now focusing on sociolinguistic research in this domain. To document Malaysian research in this domain, Malaysian colleagues have been invited to research specific areas, like topic and coherence at the Malaysian dinner table; accommodating to a deaf grandfather, code switching in Malaysian families etc. This will culminate in an international book publication. More recently, research funds by the Ministry of Women, Family and Community Development have been approved to examine the value systems of Malay, Chinese and Indian grandparents which are transmitted to their grand children.

Having at hand data from real time spoken discourse I make links to applied linguistics specifically, language teaching. Raw data for instance on compliments and greetings a la Malaysian could provide examples on a paper on cross-cultural communication and the need to make use of locally situated examples in English textbooks (David, 2004a). I use data gained in research studies focusing on sociolinguistic issues to merge the two fields of study. In time this interest not only got me an invitation to be an Honorary Fellow of the Institute of Linguists, United Kingdom but also an invitation to become an adviser of the Hong Kong Linguist and to sit on the editorial board of *The Journal of Professional Communication*. Colleagues in the Faculty of Languages and Linguistics and other local universities were invited to contribute chapters on pedagogy, testing, computer applications in ELT, problems of teaching English in the rural areas etc. for a text book in which I gave a lead chapter on the links between the political, social and economic issues in a country and their influence on language policy (David, 2004).

More recently, I have become an armchair researcher using data obtained from the media, newspapers (both hard copy and online), magazines and novels to examine the realities and representations of powerful gatekeepers as represented in their discourse (see David and Kuang, 2004 where a new magazine aimed at the above 50s both in the United Kingdom and India are examined to determine how elders are empowered discursively). Code switching as manifested in English language newspapers are also being examined to determine the extent and frequency of use of other languages and their function in English dailies.

With the objective of making our undergraduates and post graduates aware of the effect of discourse on perceptions and relationships both within their families and in interpersonal relationships within and across cultures I have designed and taught courses like *Language and National Unity and Language and Conflict Resolution* for undergraduates. Currently, I am teaching a new course, not offered in any other local university to the best of my knowledge, called *Language and Human Rights* for post graduates. Courses like *Communicating within and across Cultures*, *Spoken Discourse Analysis and Sociolinguistics* (for post graduates) do not only open the eyes of my students but help the learners make the connections between the theoretical input provided in the classroom to real time spoken data found in their environment.



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## G | R | A | N | T | S | 2 | 0 | 0 | 4

Malaysia Toray Science Foundation (MTSF) is one of the main foundations in Malaysia that promotes science and technology efforts among personalities in research institutions and universities. In 2004, during the 11<sup>th</sup> Prize Presentation Ceremony, University of Malaya was awarded one of the two Science & Technology Awards which totaled to RM60,000.00. Professor Dr. Kurunathan Ratnavelu received the award for his research on Theoretical Atomic Collision in Physics.

In addition, MTSF also awarded research grants to students that excel in their research under the category Science & Technology Research Grant totaling RM290,000.00. From nine grants awarded this year, four were awarded to postgraduate students from the University of Malaya.



## MTSF

The Malaysian Toray Science Foundation was established in 1993 through a RM4 million endowment by Toray Industries Inc., Japan. The Foundation is registered with and recognized by the Malaysian authority as an organization formed to promote and advance science and technology in Malaysia.

**Objective:**  
To contribute the progress and advancement of "Science and Technology" in Malaysia.

## Activities

The awarding of Science and Technology Prizes, to recognize outstanding achievements in the field.

The awarding of the Science and Technology Research Grants, to provide financial assistance for basic scientific research.



Professor  
Kurunathan

Professor Dr. Kurunathan Ratnavelu is the Deputy Dean of the Faculty of Science, University of Malaya. He graduated with First Class Honors in Mathematics from the University of Malaya and with a University of Malaya Fellowship obtained the degree of MSc by Research in 1985. Subsequently with a Flinders University Research Scholarship obtained his doctorate in Physics from Flinders University in 1990.

On joining the Department of Mathematics at University of Malaya in 1989, he initiated research in the theoretical aspects of the scattering of positrons and electrons with atoms. He has contributed significantly to the advancement of knowledge in the theoretical understanding of the physical systems involving the scattering of electron with atoms. His development of a realistic ab-initio Coupled-Channel Optical (CCO) method to elucidate positron-hydrogen atom scattering and its extension to other hydrogenic-atoms such as lithium and sodium was a significant contribution to the theoretical development in this field. His joint work on proton impact on Positrons (Ps) demonstrated the advancements made by theorists in treating charge exchange mechanism which is vital for the testing of the fundamental theories of physics on antimatter.

Professor Ratnavelu's contribution to his field is evidenced by his international publications in high impact journals such as Journal of Physics B (UK) and Physical Review A. His international recognition can be gauged from his role as a frequent reviewer for the Journal of Condensed Matter (UK) as well as External Examiner for PhD theses in overseas universities.

For his work, Professor Ratnavelu was awarded the National Young Scientist Prize in the Strategic Sector by Ministry of Science, Technology and Environment in 1996.

He serves as Honorary Secretary to the Malaysian Institute of Physics. He also serves as an Associate Editor of the Jurnal Fizik Malaysia as well as of the Malaysian Journal of Science Part B: Physical Sciences.



MTSF's 11<sup>th</sup> Prize Presentation Ceremony, 2004



Salwana Md Hassan

Salwana Md Hassan was born and raised in Kedah. She completed her early education there and joined the Faculty of Medicine, University of Malaya to complete her Bachelor of Biomedical Science in May of 2000. She graduated in May of 2003 and is currently a postgraduate student of the Faculty of Medicine in the field of Medical Biotechnology. Her research is entitled 'Molecular Analysis of Burkholderia pseudomallei'; where she is determining the genomic difference between a virulent and attenuated strain of Burkholderia pseudomallei. She says the result of this study may lead to better understanding of the pathogenesis of melioidosis and also to the potential production of vaccine. She will follow two research approaches for this study to determine the genomic difference of two different strains of Burkholderia pseudomallei; pulse field gel electrophoresis (PFGE) and subtractive hybridization. She received the Science & Technology Research Grant 2004 for her research proposal.

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The awarding of the Science Education Prizes, to recognize creative and innovative contributions to effective science education in secondary schools and pre-university colleges.

Other activities related to the above. "Science and Technology" is limited to the fields of natural sciences, including the environment but excluding clinical medicine and mathematics.

Sim Yoke Leng is an active 25 year old Johore-born researcher is a Bachelors of Science graduate from UM with First Class Honors Degree. With an excellent academic background she completed her Bachelors Degree in 3 years in 2003. She was awarded the Pingat Emas Peringatan R.A. Robinson and the 2003 Institut Kimia Malaysia (IKM) Graduate Chemistry Medal. She is currently a fulltime postgraduate student in the Department of Chemistry, Faculty of Science, University of Malaya under the supervision of Associate Professor Dr. Azhar Ariffin and Professor Dr. Mohammad Niyaz Khan. Her field of research is advanced materials and physical organic chemistry. She won the MTSF Science & technology Research Grant 2004 for the research entitled 'Kinetics and Mechanism of Cleavage of N-Substituted Phthalimide and Phthalamic Acid in Mixed Aqueous-Organic Solvent'. She will be detailing the mechanisms and the importance of intramolecular general acid-base catalysis in aqueous and mixed aqueous-organic solvent which takes place in many enzymatic reactions in a human body; and the hydrolysis of N-substituted phthalamic acids in mild acidic medium which constitutes partial model to many interesting and mechanistically well-defined class of enzyme-catalyzed reactions.



*Sim Yoke Leng*

Contact: 03-79676774

email: syl3110@perdana.um.edu.my

Goh Fen-Ning is currently undergoing Masters Degree Programme in Biotechnology at the Faculty of Medicine, University of Malaya. This 27 year-old Bachelors of Science graduate from Monash University Malaysia with specialization in the field of biotechnology where she conducted preliminary research on molecular microbiology. After graduating she worked as a part-time tutor and research assistant at Monash University Malaysia before joining UM as a post-graduate student. Her research at the department of Microbiology, Faculty of Medicine is under the supervision of Professor Dr. Ngeow Yun Fong (UM) and Dr. Stacey Yong Foong Yee (Monash U.). She received the Science & Technology Research Grant 2004 for her research proposal entitled Development of Rapid Detection and Quantification Assay for Legionella Pneumophila.

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Christabel Loni Anak Jiran was born in Kuching. After completing her early education there she joined Pusat Asasi Sains in 1999 for her foundation studies in science. She later joined the Faculty of Science of University of Malaya to do BSc in Biotechnology. She received a scholarship from the Tunku Abdul Rahman Yayasan Sarawak and completed her degree in three years. She was later offered a job as a research assistant for six months after which she proceeded to do her Masters Degree under the supervision of Professor Vikineswary, Professor Dr. Thong Kwai Lin and Dr. Annie Tan. Her research proposal on Biological and Chemical Diversity of Actinomycetes from Coral Reefs Marine in the East Coast of Peninsular Malaysia was awarded the Science & Technology Research Grant 2004.



Contact: 03-79674425

## Synopsis of the Research Program

The removal of acidic components from gas processing streams is an important step in the natural gas processing, commercial city gas supply plants, ammonia production and other related petrochemical industries. Among the acid gases which need to be separated are hydrogen sulfide and carbon dioxide. The removal of CO<sub>2</sub> is very important for natural gas upgrading to fully utilize domestic supplies of natural gas. Current research in low-quality gas upgrading focuses on finding lower-cost ways to remove CO<sub>2</sub> and other impurities from low-quality gas.

## Objectives and scope of the research

This research focuses on the study of fundamental mechanisms of equilibria, kinetics, and mass transfer in alkanolamine systems for gas treating. Such studies are hoped to facilitate the development and optimization of gas treating properties for new amine formulations and the development of new contactor devices (membrane contactors). A general view of the research:

**Generating experimental data on CO<sub>2</sub> solubility (VLE), physical properties, and reaction rates.**

**Developing thermodynamical and kinetic models and applying new approaches in solubility modeling (NN, HNN).**

**Corrosivity studies.**

## SCIENTIFIC ADVANCEMENT FUND ALLOCATION (SAGA)

Name	Title of Project	Amount
Professor Dr. Khalijah Awang - Dept of Chemistry	Computer Modelling Studies on Bioactive and Novel Natural Products	RM131,000
Assoc. Professor Dr. Sharifuddin Mohd Zain - Dept of Chemistry	Study of the Selectivity of Diels-Alder Reaction involving Chiral Cationic Catalyst	RM263,000
Assoc. Professor Dr. Noel Thomas - Dept of Chemistry	The styryl-anilines: versatile building blocks for the synthesis of alkaloids from Malaysia Kopsia etc.	RM311,000
Assoc. Professor Dr. Azhar Ariffin - Dept of Chemistry	Kinetics and mechanisms of Homogenous Catalysis in Organic Reactions which are Model to Biological Reactions	RM352,000
Assoc. Professor Dr. Misni bin Misran - Dept of Chemistry	Self-assembly Vesicle Equilibrium Kinetics and Factors Affecting Bilayer Rigidity on Diffusion Kinetics	RM269,000
Professor Dr. Sharmala Devi - Dept of Microbiology Medicine	Characterization of Dengue Specific T&B Cell Epitopes and their Association with Viral Peptides/Sequences in the Dengue Haemorrhagic Fever Infections	RM460,000
Assoc. Professor Dr. Saadah Abdul Rahman	Electrostatic Phenomena at Organic/Metal Nanointerface	RM186,716

The annual expenditure of MSTF is approximately RM600,000 financed by operating income from the MTSF endowment fund and contributions from Toray Science Foundation, Japan and Toray subsidiaries in Malaysia.

**Awards and Grants**  
MTSF Science and Technology Awards  
MTSF Science and Technology Research Grants (including grants from Toray Science Foundation, Japan)  
MSTF Science Education Awards



## Facilities

2 reactors (VLE & kinetic studies)  
Hollow fiber membrane rig (Hybrid membrane/alkanolamine process)  
Electrochemical workstation (corrosion studies)  
Autotitrators, GC, etc. (analytical techniques)  
Modeling and simulation softwares: AspenPlus, Matlab, Reproche, Easyfit

To date, this study has produced one Master thesis completed, two Ph.D. thesis completed, 10 papers in refereed journals and more than 25 presentations in international, regional, and local conferences.

### Research team

Associate Professor Dr. Mohamed Kheireddine Aroua (Project leader)  
Dr. Abdelbaki Benamor (reaction engineering expert)  
Professor Dr. Nik Meriam Sulaiman (membrane expert)  
Associate Prof. Dr. Mohd Azlan Hussain (NN expert)

## EMEPMI Grant 2004

### Brief background

The ExxonMobil Exploration and Production Malaysia Inc. (EMEPMI) collaboration with the Department of Chemical Engineering in research on amine technology for CO<sub>2</sub> removal was initiated in 1998 by Mr. Ismail Zainal and the late Professor Mohd Zaki Sulaiman of the Chemical Engineering Department, University of Malaya. EMEPMI has been donating sums of RM10,000 per year to finance part of the research carried out at the Department.



## ITEX Geneva Highlights

No.	Title of Project	Research Team	Award
1.	Melasta Tablets	<ul style="list-style-type: none"> <li>Assoc. Prof. Dr. Kim Kah Hwi</li> <li>Datin Assoc. Prof. Dr. Sri Nurestri Abd Malek</li> <li>Dato' Prof. Dr. Hashim Yaacob</li> </ul>	Gold
2.	OMX Probiotic Dentifrice for Oral Health	<ul style="list-style-type: none"> <li>Assoc. Prof. Dr. Koshy Philip</li> <li>Dato' Prof. Dr. Hashim Yaacob</li> <li>Prof. Dr. Dasan Swaminathan</li> <li>Dr. Sushil Kaur</li> </ul>	Gold
3.	TriAqura Rinse-Alcohol Free Plant-based Oral Healthcare Product	<ul style="list-style-type: none"> <li>Prof. Dr. Zubaidah Abdul Rahim</li> <li>Dr. Fathilah Abdul Razak</li> <li>Assoc. Prof. Dr. Marina Mohd Bakri</li> <li>Hasnah Begum Said Gulam Khan</li> <li>Wan Nordini Hasnor Wan Ismail</li> <li>Khaw Lek Ming</li> <li>Sulinda Daud</li> </ul>	Silver
4.	ORTHOPROS – UM Novel Orthodontic Prosthesis	<ul style="list-style-type: none"> <li>Dr. Zamri Radzi</li> <li>Dr. Noor Azlin yahya</li> <li>Assoc. Prof. Dr. Norzakiah Mohamed Zamzam</li> </ul>	Gold
5.	Polyhydroxyalkanoates (PHA) as a Potential Scaffolding Material for Rigid Fracture Fixation of the Maxillofacial Skeleton	<ul style="list-style-type: none"> <li>Prof. Dr. Siar Chong Huat</li> <li>Ong Siew Tin§ Lian Chin Boon</li> <li>Irene Tan Kit Ping</li> <li>Gan Seng Neon</li> <li>Christina Chan</li> </ul>	Silver
6.	Computer-Aided Reconstruction of Cranio-orbital Deformity	<ul style="list-style-type: none"> <li>Assoc. Prof. Dr. Zainal Ariff Abd. Rahman</li> <li>Prof. Ir. Dr. N. Selvanathan</li> <li>Dr. Kalai Arasu Muthusamy</li> </ul>	Gold
7.	Making Flexible Polyurethane Foams from Palm Oil-Based Polyols	<ul style="list-style-type: none"> <li>Prof. Dr. Gan Seng Neon</li> </ul>	Gold
8.	Branched Chain Glycolipids for High-Tech Applications	<ul style="list-style-type: none"> <li>Prof. Dr. Rauzah Hashim</li> <li>Rusnah Syahila Duali Hussen</li> <li>Nasrul Zamani Mohd. Rodzi</li> <li>Teoh Teow Chong</li> <li>Thorsten Heidelberg</li> </ul>	Gold * Special Award
9.	Value-Added Artificial Insemination (AI) Technologies in Jermasia Goat	<ul style="list-style-type: none"> <li>Prof. Dr. Ramli Abdullah</li> <li>Prof. Dr. Wan Khadijah Embong</li> </ul>	Silver
10.	Pulsed Plasma X-Ray Source	<ul style="list-style-type: none"> <li>Prof. Dr. Wong Chiow San</li> </ul>	Silver
11.	Rhodobac	<ul style="list-style-type: none"> <li>Prof. Dr. S. Vikineswary</li> <li>Prof. Dr. Chong Ving Ching</li> <li>Prof. Dr. K. B. Ramachandran</li> <li>Assoc. Prof. Dr. Shaliza Ibrahim</li> <li>Dr. Sujat Al-Azad</li> <li>K. Getha</li> <li>Khanom Simarani</li> <li>S. Maheswari</li> </ul>	Gold
12.	Pluzyme	<ul style="list-style-type: none"> <li>Prof. Dr. S. Vikineswary</li> <li>Assoc. Prof. Dr. Noorlidah Abdullah</li> <li>Avnessh D. Singh</li> <li>Prof. Dr. K. B. Ramachandran</li> <li>Assoc. Prof. Dr. M. Sekharan</li> <li>Prof. Dr. E. B. Gareth Jones</li> <li>Prof. Dr. Ashok Pandey</li> <li>Prof. Dr. Masitah Hassan</li> </ul>	Silver
13.	Innovative Options for Waste Minimization Towards Cleaner Environment in a Developing Economy, Malaysia	<ul style="list-style-type: none"> <li>Prof. Dr. Agamuthu P.</li> <li>Fauziah S.H.</li> <li>Irwan T.</li> <li>Nor Asikir M.</li> <li>Elizabeth E. G.</li> <li>Nis Hansini C.</li> <li>Randolph J.</li> <li>Wong L.P.</li> </ul>	Gold
14.	Skinplast	<ul style="list-style-type: none"> <li>Datin Assoc. Prof. Dr. Sri Nurestri Abd Malek</li> <li>Assoc. Prof. Dr. Kim Kah Hwi</li> <li>Dato' Prof. Dr. Hashim Yaacob</li> <li>Prof. Datin Dr. Norhanom Abdul Wahab</li> </ul>	Gold

15.	Designer Plants for Agriculture	<ul style="list-style-type: none"> <li>• <u>Assoc. Prof. Dr. Norzulaani Khalid</u></li> <li>• <u>Assoc. Prof. Dr. Rofina Yasmin Othman</u></li> <li>• <u>Dr. Chua Kek Heng</u></li> <li>• <u>Assoc. Prof. Dr. Jennifer Harikrishna</u></li> </ul>	Bronze
16.	A Safe, Efficient Method for Producing Vaccine Candidates using Viruses from Plants	<ul style="list-style-type: none"> <li>• <u>Assoc. Prof. Dr. Rofina Yasmin Othman</u></li> <li>• <u>Dr. Tan Siang Hee</u></li> <li>• <u>Prof. Dr. M. Nishiguchi</u></li> <li>• <u>Ooi Aik Seng</u></li> </ul>	Silver
17.	Vi. S Typhi Detection	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Thong Kwai Lin</u></li> <li>• <u>Dr. Chua Kek Heng</u></li> <li>• <u>Prof. Dr. Shamala Devi</u></li> </ul>	Gold
18.	Glycolipids Based Cream for Cosmetic Application	<ul style="list-style-type: none"> <li>• <u>Assoc. Prof. Dr. Misni Misran</u></li> </ul>	Silver
19.	Asquant Dengue Kit	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. S. Shamala Devi</u></li> <li>• <u>Yong Yean Kong</u></li> <li>• <u>Dr. Victor Chong</u></li> </ul>	Gold
20.	Finger Fixator for Resistant Fixed Flexion Deformity	<ul style="list-style-type: none"> <li>• <u>Prof. Dato' Dr. Tunku Sara Tunku Ahmad Yahya</u></li> <li>• <u>Prof. Dato' Dr. Goh Sing Yau</u></li> </ul>	Silver
21.	A Lectin-based Pregnancy Test Kit	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Onn Hashim</u></li> <li>• <u>Dr. Adawiyah Suriza Shuib</u></li> </ul>	Gold
22.	A New Intervertebral Distractor	<ul style="list-style-type: none"> <li>• <u>Dr. Chong Chee Seang</u></li> </ul>	Gold
23.	MITRA KIT, The First Mitragnine Test Strip in the world	<ul style="list-style-type: none"> <li>• <u>Assoc. Prof. Dr. Mustafa Ali Mohd</u></li> </ul>	Gold
24.	Single-Phase Hybrid Power Active Filter Design	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Nasrudin Abdul Rahim</u></li> </ul>	Bronze
25.	Natural Rubber Latex Concentration by Membrane Separation	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Nik Meriam Nik Sulaiman</u></li> <li>• <u>Devaraj Veerasamy</u></li> </ul>	Gold
26.	Smart Cane to Assist Visually Impaired Individuals	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Mahmoud Moghavveni</u></li> </ul>	Gold * Special Award
27.	WARNAGRIP	<ul style="list-style-type: none"> <li>• <u>Dr. Syed Nur Azman Syed Mustafa</u></li> <li>• <u>Prof. Dr. Mohd Rehan Karim</u></li> </ul>	Gold
28.	Three-Phase Grid Connected Inverter with Maximum Power Point Tracker Control and Power Factor Correction	<ul style="list-style-type: none"> <li>• <u>Dr. Saad Mekhilef</u></li> <li>• <u>Prof. Dr. Nasrudin Abdul Rahim</u></li> </ul>	Silver
29.	L Block Revetment	<ul style="list-style-type: none"> <li>• <u>Dr. Roslan Hashim</u></li> <li>• <u>Mohamed Ahmed Hafez</u></li> </ul>	Gold * Special Award
30.	Design and Prototype of a Tricuspid Valve	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Ir. N. Selvanathan</u></li> <li>• <u>Dr. Sanjeev</u></li> <li>• <u>Assoc. Prof. Dr. Basri Johan Jeet Abdullah</u></li> </ul>	Gold
31.	Simulation of CranioFacial Procedures and Prediction of Post-Operative Appearance	<ul style="list-style-type: none"> <li>• <u>Prof. Dr. Ir. N. Selvanathan</u></li> <li>• <u>Unaizah Hanum</u></li> <li>• <u>Mangalam Sankupellay</u></li> <li>• <u>Assoc. Prof. Dr. Norzakiah Mohamed Zamzam</u></li> <li>• <u>Dr. Zamri Radzi</u></li> <li>• <u>Assoc. Prof. Dr. Zainal Ariff Abd. Rahman</u></li> <li>• <u>Assoc. Prof. Dr. Siti Mazlipah</u></li> <li>• <u>Assoc. Prof. Dr. Basri Johan Jeet Abdullah</u></li> </ul>	Silver
32.	A Cloth Dryer that Utilize Rejected Heat from an Outdoor Unit of Split-unit Air Conditioning System	<ul style="list-style-type: none"> <li>• <u>Zunaibi Abdullah</u></li> </ul>	Bronze
33.	CASTLe – Classroom Assessment System for Teaching and Learning	<ul style="list-style-type: none"> <li>• <u>Assoc. Prof. Dr. Noraini Idris</u></li> <li>• <u>Dr. Loh Sau Cheong</u></li> <li>• <u>Dr. Lihanna Borhan</u></li> <li>• <u>Rashidah Hassan</u></li> <li>• <u>Wan Rohaya Wan Yusoff</u></li> <li>• <u>Hamidah Shamsudin</u></li> <li>• <u>Mohd Yusof Saad</u></li> </ul>	Gold

# ITEX Geneva Highlights



A Big Smile



"And the winners are....."



The View across Lake Geneva

The "Tour" Manager



IPPP stalwarts



".....my invention is....."

".....here comes the Mayor....."



The Big Send-Off



Spring time in Geneva



This is our strategy



".....this is how it works....."



Two doctors and the patient

## The Geneva Experience

**Dr. Zamri Bin Radzi,**

*DDS, Dip. Trans. MDentSci in Orthodontics (Leeds), FFD RCS (Ireland),  
MOrth RCS (Edinburgh), MOrth RCS (England)*

*Lecturer & Consultant Orthodontist, Faculty of Dentistry, University of Malaya.*

7 days with 36 of us from UM - what did it do to me? What did I gain from this trip? Where have I moved from then?

This was supposed to be a special exhibition for innovation- we all had some aspect of innovation to be put on competition-so we went-with the support of all our colleagues behind us -like Dr. Noor Azlin Yahya, Assoc. Prof. Dr. Norzakiah Zamzam, Ir. Idrus Ahmad, Prof. Dr. Loga Baskaran, En Idris Abdul Manan, En Rahim Bahari, En Yong Ting Nam, Mr. James Spencer, Cik Norish, En. Jabarudin, En. Razali Arshad, En. Abu Touhar, Kala, Shida, Hasnah, Hasibah, Putri, Noraini, Dr. Yatimah Othman, Dr. Fatimah Abdullah, Assoc. Prof. Dr. Halimah Awang, Prof. Rosnah Zain, Prof. Dr. Zubaidah Rahim, Prof. Dr. Rauzah Hashim, Dean of Dental Faculty, Prof. Dr. Rahimah Kadir, Prof. Dr. Mohd Rasat, Prof. Dr. Sahar Yahya, Prof. Dr. Nik Meriam Sulaiman, Dato. Prof. Dr. A Hamid A Hadi, Prof. Dr. Mohd Zakaria, Datin Prof. Dr. Sri Nurestri, Prof. Dr. Gan Seng Neon, Assoc. Prof. Dr. Noorhayaty Abu Kasim, Rashdan, Adzhar, Ms Yeoh Siew Wan and the staff of IPPP.



*Prof Dr Rauzah Hashim - Special Awards*

Then there was none other than our VC-who was encouragement personified-like a father to his children-always aiming for success. There was also the Pro Chancellor's backing-solidly so.

The trip saw excitement and lots of ups with no downs-Prof. Dr. Mahmood's special stick for the blind -it broken on the way-but no hopes were broken. Zunaibi had an arm injury operation the previous night-he still boarded the plane.

At the venue-everyone was abuzz with excitement, tension and most of all-hard work. After so much work-it was time for the results. N Sulaiman was the first name called out. 'Hashim Yaacob' (sound familiar, doesn't it?) was announced twice. This exemplar name was followed by the other winner's names.



*Gold Medalist Prof. Dr. Gan Seng Neon 7*

In total-we won 19 gold, 11 silver and 3 bronze medals, along with 3 special and prestigious wards.

All in all, this Geneva experience meant a lot for all of us and for UM the spirit of research, recognition and reputation held us all together-to stand as proof of 'UM Boleh'ness!

Being the baby of the bunch- I gleaned an individual experience during this memorable trip of such high international standard-where more than 1000 exhibitors from more than 40 countries, judged by more than 70 judges from all over the world- gathered together under one roof. The exhibition had more than 56 000 visitors and had extensive media coverage from more than 36 countries-with more than 600 journalists.

I wish to thank UM for having supported and given me this opportunity which will go a long way in my professional and personal life.



## COPYRIGHT LAW IN MALAYSIA: Does the Balance Hold?

Professor Dr. Khaw Lake Tee  
Faculty of Law, University of Malaya

Thinking of the copyright law, particularly in Malaysia, we are actually facing a dilemma between two parties. The copyright owner, the one who own the invention or “expression of ideas” as Professor Dr. Khaw Lake Tee puts it, has inarguably the right to claim financial benefits from his or her work. On the other hand, the consumers also have the right to obtain cheap and readily available supplies of copyright works that will further enhance the dissemination of knowledge among the society. In the digital age, and with the emphasis on knowledge economy, the challenge is to maintain an acceptable and appropriate level of balance. Copyright owners are concerned that technology has put into the hands of the users the ability to copy and distribute copies of their work without any financial benefit to them. They want greater protection. Users would like to have easy and cheap, if not free access to information and copyright works, and if technology offers that prospect, are not unwilling to utilize it. They want less or no protection. In one hand, there is the expectation of the copyright owner to benefit financially from the wider dissemination of his work; on the other is the expectation on the part of the user to be able to access information and cultural products cheaply and readily. This is where the question of balance in our copyright law arises. Is our existing copyright law fair enough for the protection of both parties? Actually when we talk about copyright law, the owner of the copyright work does not have absolute monopoly to their copyright work. There are four exceptional circumstances where the users and consumers have right to use of utilize it. These circumstances ensure that there is balance between the interest of the consumers and owners of the copyright.

First; although copyright law covers a wide range of subject matter, not all works are protected. Before any work may be protected, it must fall within one of the categories of protected works; it must be original in the sense that it was the result of the skill and effort of the author or creator; and it must be in some material form. Second; it is a fundamental principle that copyright only protects expressions and not ideas. Simply put, while the idea underlying any work may be copied, the expression of that idea may not. That way, copyright ensures that there is a free flow of ideas, and those ideas does not become monopolized by individuals whom have reduced them to expressions. Then again, ideas and expressions of ideas are not always easily distinguishable. Third; the protection under copyright

is only for a prescribed period of time after which the work falls into the public domain and will be freely available for public access. The typical period of protection is the life of the author plus fifty years. Fourth and finally is permitted acts. Copyright law entitles the copyright owner to control the access and usage of copyright works. However, in certain circumstances; in

***“...the battle is not only for the interests of the copyright owners against those of the public; but also extends between developing and developed countries.”***

*Professor Khaw Lake Tee*

the areas of education, research, the media and access to information; users may have access and use of the copyright works without having to seek permission of the copyright owner and not infringing copyright laws because permitted acts does not extend to these acts.

In the effort to maintain balance in copyright law, the battle is not only for the interests of the copyright owners against those of the public; but also extends between developing

and developed countries. The copyright and other IP rights of developing countries are usually negotiated from a position of relative weaknesses, and most times the ignorance of the benefits of such intangible property rights as well.

Emerging as forces to be reckoned with are movements that seem to strike at the very root of copyright law. On one hand is the demand for unrestricted access to copyright material at the lowest possible cost or for free led by NGOs, resource centers and the public. Some label these movements as ‘consumer politics’, ‘freedom to copy’, and ‘politics of IP’. On the other hand are movements led by right-holders to place increasing restrictions against not only copying but also access to their works by deploying technologies; by imposing terms and conditions on use and by instituting legal action not only against parties whom facilitate copying but users as well.

Both movements are actually premised on the public interest to be served by copyright. It is the public interest to promote learning, and to do this creators must be given the incentive to innovate while at the same time the public must be given access so that they can use the knowledge created and build upon it.

To redress this imbalance, there is a need for developing countries including Malaysia to develop a policy for its intellectual property. Malaysia through the Ministry of Domestic Trade and Consumer Affairs has prepared a draft Intellectual Property Policy, which is hoped to enable us to craft our laws to suit our own developmental needs.



Professor Khaw Lake Tee

Professor Khaw Lake Tee graduated from the Faculty of Law of the University of Malaya in 1978 with a First Class Honours. In 1982, after completion of her post-graduate studies, she was appointed as lecturer of the Faculty of Law of the University of Malaya. In 1990, she obtained her PhD degree from the London School of Economics and Political Science of the University of London. Her thesis entitled Copyright Law in Malaysia: Response to Technological Development was awarded the CISAC Prize for the best thesis of the year in the field of Intellectual Property in the UK. Her teaching and research interests and experience are in land law, intellectual property and information technology law.

Together with Mr. Teo Keang Sood, she produced the first casebook on Malaysian land law, entitled Land Law in Malaysia – Cases and Commentary, in 1986, which became one of the main references not only for law students but law practitioners as well. She and her co-author are currently working on the 3<sup>rd</sup> edition of the book.

In 1991-92 and 1994-97, she held the position of Deputy Dean at the Faculty. In November 2002 she was appointed the Head of the Legal and Management Services Unit of the University of Malaya, which provides legal and advisory services to the university and the Vice-Chancellor. On 1<sup>st</sup> April 2004 she was appointed Dean of the Faculty of Law for the term of two years.

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Professor Dr.  
Zahari Taha

Professor Dr. Zahari Taha graduated with a BSc in Aeronautical Engineering with Honours from the University of Bath, UK. He joined the Department of Mechanical Engineering, University of Malaya in 1983 as a tutor. He obtained his PhD in Dynamics and Control of Robots from the University of Wales Institute of Science and Technology in 1987 and returned to join UM as a lecturer. From 1995 to 1998, he completed his postdoctoral at the University of Wales Institute College Cardiff in the area of engineering design and ergonomics. He is also a graduate of the Diploma in Islamic Studies from International Islamic University Kuala Lumpur. Dr. Zahari was awarded the Hitachi Fellowship in 1992 and also the Young Malaysian Scientist award by Ministry of Science, Technology and Environment in 1997. He was promoted to associate professor in 1992 and to full professor in 2000. Dr. Zahari has published more than 100 papers in academic books, journals and proceedings. He has been involved in several Industrial Grant Schemes (IGS) projects in total worth more than RM10 million on the design of a metalizing machine, gas insulated switchgear and aluminium multilocking pulley. His major research interest includes mobile robots, underwater robots, surgical robots, ergonomics design, ergonomics at work, software development for traffic applications and motion analysis.

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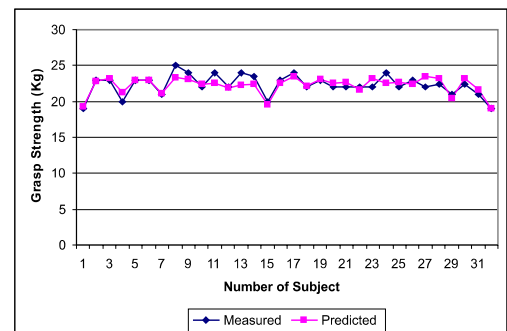
## MAN AND MACHINE IN PERFECT HARMONY

**Professor Dr. Zahari Taha**, C Eng, MIED  
Faculty of Engineering, University of Malaya

The world stood at a stand still when the robots Spirit and Opportunity landed in Mars. Never could one have imagined that man and machine could work in perfect harmony to overcome what would have been an insurmountable task of exploring a new frontier. There are two kinds of robots. Industrial robots are used in factories to replace human beings where precision is required and where safety is paramount. Basically they are positioning machines whose technology has not changed much in the last 15 years. Their configurations are typically shaped like a human arm and are usually driven by electric motors and their sensors limited to only sensing position. The term service robots came into being only a decade ago. Essentially they are envisaged as having superior intelligence and multiple sensors emulating the human being. They are aimed at providing assistance at home, hospitals, building management and also as toys and companions and unique application such as the exploration of Mars. The market for industrial robots has dropped from USD5.7billion in 2000 to USD3.9billion in 2001. The biggest share of this market is in Japan followed by United States and Germany respectively. However the number of service robots are expected to increase from USD190,000 in 2001 to more than USD2.2 million in 4 years. The largest number of applications is expected to be in cleaning, medicine, monitoring and security and gas stations as well as agriculture.

However there are many issues that need to be resolved before service robots can become pervasive. In particular they will need to have the following characteristics

- Be able to emulate human behavior as close as possible
- Have the intelligence to process information from several sources including from tactile and non-tactile sensors and consequently make decisions.
- Capable of emotional interactions



Tactile sensing for gripping and differentiating the texture and rigidity of an object, visual recognition to provide a sense of dimensionality and human-machine interaction that provides emotional bonding are still at its infancy compared to what the human is capable of. Most of all is the question of intelligence and how close can we emulate human intelligence. One way is through the use of artificial neural networks. The artificial neural networks is basically a primitive model of how the brains works. In its earliest conception the model is both static and nonlinear. The second-generation representation is able to accept dynamic inputs allowing temporal encoding. The third generation will emulate very closely the neurocognitive system of the human being. To illustrate the capabilities of neural networks one application is using neural networks to generate natural human motion and predicting grip strength. In generating human motion, the actual motion has to be captured for example using video. Information about the motion such as joint angles displacements are extracted by digitization. This is trained on the neural network to compute the weights. These weights can then be used to generate the same motion using the neural networks. Another example is predicting grip strength. The figure below shows the predicted grip strength using neural networks and the actual measured strength.

Information from sensors has to be processed before it can be useful to algorithms such as neural networks. Processing information from images consist of several steps. In the figure below the images have to be differentiated from the background before it can be identified as two objects at two different locations.



Information from sensors has to be processed before it can be useful to algorithms such as neural networks. Processing information from images consist of several steps. In the figure below the images have to be differentiated from the background before it can be identified as two objects at two different locations.



The University of Malaya and the National University of Singapore both share a common history. Both institutions started life as the King Edward College in 1905. In conjunction with the centennial celebrations of our two universities, the Faculty of Law UM and the Faculty of Law NUS are happy and proud to have presented a joint seminar on the topic of *Developments in Malaysian and Singaporean Law*.

The seminar was hosted by NUS in Kuala Lumpur on April 23. As Singapore and Malaysia share a common legal tradition, the seminar highlighted legislative and judicial developments in areas of mutual interest and applicability such as commercial, criminal, international and family law. In particular, the seminar highlighted how the laws of both countries have converged and diverged in various areas in response to changing societal conditions and priorities. At the same time, and perhaps more importantly, the seminar was successful in fostering closer ties between the two law faculties and universities. What follows are the synopsis of some of the papers presented by the UM lecturers.

**Title of paper: Recent Developments in Malaysian Intellectual Property Law**  
by Ms Tay Pek San

Protection of intellectual property was already in existence when Malaysia was formed in

## University of Malaya and National University of Singapore Centennial Law Seminar, 23 April 2005

1963. At that time, there were laws on copyright, trade mark, patent and industrial design. However, in respect of patent and industrial design, registration had to be obtained first in the United Kingdom before protection could be granted in this country. In 1983, the Patents Act 1983 was passed which established a local system of registration of patents and provided for the setting up of an administrative machinery which enabled patents to be examined and registered locally. In 1996, the Industrial Designs Act 1996 was enacted to provide a machinery for the registration of industrial designs in Malaysia. With the passage of both these statutes, Malaysia now has a completely indigenous statutory system for the registration of the three significant areas of industrial property, namely, patents, trade marks and designs. Thus, the year 1996 marks a significant development in the landscape of intellectual property law in this country. The paper provides an overview of the legislative developments that took place in the Malaysian intellectual property statutory



regime since 1996. The purpose is to demonstrate that as the country strives towards success in a knowledge-based and services dominated era, issues surrounding protection of intellectual property rights in this country have been propelled to the forefront and given emphasis by the Government.

**Title of paper: Arbitration and Mediation – Different Waters Flowing in the Same Stream**

by Ms Grace Xavier

The growth of alternative dispute resolution methods has progressed over the past few decades, with arbitration taking the lead, and mediation making its debut during the 1990s. ADR was initially recognized as Alternative Dispute Resolution but of late it has also been referred to as Appropriate Dispute Resolution. This gives the connotation that the various modes of dispute resolution that are presently available may be used for different disputes. This paper examines the concepts of two such dispute resolution mechanisms, the features of arbitration and mediation; and the appropriateness of using

these mechanisms either by using one specifically towards the resolution of particular disputes, or using both interchangeably towards resolving commercial disputes.

**Title of paper: Southeast Asian Constitutionalism: Some Directions**

by Dr. Khoo Boo Teong

The paper examined the constitutions of some member countries of the Association of Southeast Asian Nations (ASEAN). It highlighted some patterns and evaluated the state of constitutionalism in this region based on the origins of the respective constitutions.

**Title of paper: A Malaysian Doctrine of Inequality of Bargaining Power and Unconscionability After Saad Marwi**

by Dr. Cheong May Fong

The doctrine of unconscionability has been increasingly used to overcome contractual unfairness in Australia, Canada and the United Kingdom. The Court of Appeal's decision in *Saad Marwi v Chan Hwan Hua & Anor* [2001] 3 CLJ 98 has brought Malaysia nearer to this front, in its recognition of a 'wider doctrine of inequality of bargaining power' and the adoption of 'the English doctrine [of unconscionability] but apply it in a broad and liberal way as in Canada'. This paper will trace the earlier Malaysian position and examine the Court's decision in *Saad Marwi*. The main challenge is the incremental development of the doctrine of unconscionability and in doing so, the Malaysian courts should not stop at considering the English and Canadian approaches alone but should also consider the developments in Australia.



## International Networking For Young Scientists Workshop Rimba Ilmu, UM, 14 – 18 March 2005

The idea of organizing an International Networking For Young Scientists Workshop for young scientists from the UK and Malaysia was mooted in 2004 by the British Council and became a reality in 2005. The event, jointly organized by the Ministry of Science, Technology and Innovation, Malaysia (MOSTI) and the British Council, Malaysia was held on 14 till 18 March 2005 at Rimba Ilmu, University of Malaya. The Institute of Research Management and Consultancy (IPPP) was proud to be invited by MOSTI to co-organize the event.

The International Networking for Young Scientists programme is an initiative by the British Council to facilitate the face-to-face meetings between young scientists from the UK and other countries, for the exchange of ideas, knowledge and information and the building of international connections that will assist the innovation process. Through this forum it is hoped that close links will be fostered between these young scientists that will enable them to collaborate on real projects in their particular areas of research interest in the near future.

For this first ever workshop in Malaysia, the University of Malaya was the chosen venue. Nanoscience and nanotechnology were identified as the fields of emphasis for discussion at this workshop. A total of sixteen young scientists, eight from each side,

participated in this programme. The UK scientists hailed from universities of high international standing such as University of Oxford, University of Cambridge, University of Wales Swansea, University of Bristol, University of Birmingham, University College London, Cardiff University and University of Warwick. The Malaysian counterparts were young scientists from the University



of Malaya (UM), Universiti Sains Malaysia (USM), Universiti Putra Malaysia (UPM), University Kebangsaan Malaysia (UKM), Universiti Malaysia Sarawak (UNIMAS), and the National Technical University College of Malaysia (KUTKM). Professor Dr. Muhamad Rasat Muhamad, the Director of the Institute of Research Management and Consultancy, UM was the Malaysian Co-ordinator of this programme with Dr. Terry McMaster from the University of Bristol as his UK counterpart. Dr. McMaster is a board member of the Interdisciplinary Research Centre in Nanotechnology (Universities of Cambridge, Bristol and University College London).

The Workshop programme commenced with paper presentations over the first two days from the young scientists, including the co-ordinators, on areas in Nanotechnology covering topics on nanocharacterization, nanostructures and nanoelectronics. The next two days were planned visits to the home universities of the Malaysian scientists for laboratory visits and discussions on possible research collaboration. In spite of the intensive and compact programme, the young scientists managed to tour the city sights during one of the evenings. The last day of the workshop was left free to enable the UK scientists some leisure pursuits such as shopping, sightseeing as well as trying out the rich variety of cuisines available in Kuala Lumpur.

The Workshop concluded with a debriefing session attended by representatives from the British Council, MOSTI, the workshop co-ordinators and the young scientists. Both parties agreed to foster closer relationship and develop collaborative work in the specific areas of nanostructures, nanocharacterisation and nanoelectronics.





## Chemical Engineering Undergraduate Research Day, 2004/05 - 23 March 2005



Chemical Engineering Department of University of Malaya (CEUM) organized its first Undergraduate Research Day on 23rd March 2005. This event was sponsored by the Faculty of Engineering, UM and officiated by Yg. Bhg. Datuk Dr. A. Ahmad A. Hadi, Deputy Vice Chancellor (Academic) of UM.

Undergraduate research has been part of the unique feature of chemical engineering syllabus since 1974. This feature of the syllabus has been maintained even after numerous revisions of this syllabus. Chemical engineering research supports development and production of new materials, fuels, drugs, health care products, foods and beverages, electronic components and in many other fields. Research in this field is becoming increasingly important in the global development of modern societies. ChemEng Undergraduate Research Day will be an annual event aiming to increase students' awareness of the chemical engineering field. It will be a unique opportunity for interaction between students, academicians and the industry.

The program was designed to meet the following objectives:  
*to promote the Faculty of Engineering, UM amongst the industry and the society;*  
*to enhance research awareness among students;*  
*to introduce various research areas in CEUM;*  
*to increase competitiveness of*



*students in research based activities;  
 to encourage and establish industrial linkages.*

The undergraduate research program covers the following research areas:

*Advanced material & technology*  
*Bioprocess engineering*  
*Health, safety & environment*  
*Purification & separation processes*  
*Process system engineering & control*  
*Reaction engineering.*

All the students from CEUM participated and several institutions like The Institute of Chemical Engineers Malaysia (IUKM), SHELL Malaysia, and the Malaysian Rubber Board amongst others sent representatives to take part on that day.

## Exhibitions 2005

**Ekspo Harta Intelek**  
 Melaka International Trade Centre  
 3-6 March 2005  
**E C**

**Showcase: Product and Technology for Tomorrow**  
 Crown Plaza Mutiara, Kuala Lumpur  
 21-25 March 2005  
**E**

**Seminar Remote Sensing dan Sistem Maklumat Geografi**  
 Legend Hotel, Kuala Lumpur  
 5-6 April 2005  
**C**

**International Exhibition Of Inventions Geneva (I.TEX Geneva)**  
 Geneva, Switzerland  
 6 – 10 April 2005  
**E**

**Asia Pacific Natural Products Expo (NATPRO)**  
 PWTC, Kuala Lumpur  
 14-16 April 2005

**International Bio-Expo Japan**  
 Tokyo, Japan  
**E**

**BioMalaysia Showcase**  
 Putrajaya  
 28-30 April 2005  
**E C**

**International Invention, Innovation, Industrial Design & Technology Exhibition (I.TEX)**  
 Mid-Valley Exhibition Centre, Kuala Lumpur  
 19 – 21 May 2005

**Invention & New Product Exposition (INPEX)**  
 Pittsburgh, USA  
 8-11 June 2005  
**E**

**Creativity In Science & Mathematics Education Expo (S&M)**  
 PWTC, Kuala Lumpur  
 18 – 20 June 2005\*

**Ekspo Penyelidikan & Inovasi UM 2005**  
**Sempena 100 Tahun UM**  
**Dewan Tunku Canselor**  
 9-12 June 2005

**I (3) Asia 2005**  
 Singapore Expo, Singapore  
 28-30 June 2005  
**E**

**MSA Golden Jubilee "Healthy Living" Expo 2005 & International Science Congress (ISC) 2005**  
 PWTC, Kuala Lumpur  
 4-7 August 2005  
**E C**

**Exhibition of Innovations, S&T in ASEAN**  
 Jakarta, Indonesia  
 10-14 August 2005  
**E C**

**Agriculture Selangor Exhibition (AGRIS)**  
 Seksyen 14, Selangor  
 28-30 August 2005

**Bio-Technology Asia Conference & Exhibition (Biotech)**  
 PWTC, Kuala Lumpur  
 16 – 18 August 2005

**Expo Science & Technology (S&T)**  
 PWTC, Kuala Lumpur  
 26 – 28 August 2005\*

**Eco-Products International Fair (ECO)**  
 Mid-Valley Exhibition Centre, Kuala Lumpur  
 2 - 4 September 2005\*

\* Tentative dates

**E** Exhibition

**C** Conference

## The Academic Context

THE FACULTY OF THE BUILT ENVIRONMENT (FBE) has striven to place research high on its agenda towards academic excellence. This faculty began as a programme within the Faculty of Engineering in 1995 and was upgraded to a division in 1999. Later, it developed into a full-fledged faculty in July 2000 to join the rank as the youngest faculty on UM campus. Today, FBE delivers its teaching of the various built environment disciplines through the four departments: the Department of Architecture, Department of Building Surveying, Department of Quantity Surveying and Department of Estate Management.



Currently, programmes of study are offered at both the undergraduate and postgraduate levels in the faculty. At undergraduate level, the programmes consist of the Bachelor of Science in Architecture, Bachelor of Architecture, Bachelor of Science in Quantity Surveying, Bachelor of Science in Building Surveying and Bachelor of Science in Estate Management. At postgraduate level, the programmes are all by research at the moment, and they lead either to one of the Masters degree, (i.e. the MSc (Estate Management), or MSc (Architecture), or MSc (Building)), or to doctoral qualification. FBE is now at an advance stage of preparation towards its first masters degree by coursework, the Master in Real Estate (MRE), which is scheduled to be offered from 2006 onwards.

As a faculty that embraces a multitude of different professions within the built environment, FBE has managed to draw support from the industry, at both the local and international levels. The faculty's

**1 Centre for Building Conservation & Records (BCR)**  
focused on dealing with research on the conservation, rehabilitation and recording of heritage buildings

**2 Centre for Equatorial and Sustainable Design (ESD)**  
focused on dealing with research on sustainable environmental design of buildings in the context of the tropical regions

**3 Centre for Accessible Built Environment (ABLE)**  
focused on dealing with research on inclusive design, focusing on issues related to safety and accessibility in the built environment

**4 Centre for Project and Facilities Management (PFM)**  
focused on dealing with research on the management of projects and facilities in civil and building construction

**5 Centre for Studies of Urban Real Estate (SURE)**  
focused on dealing with research in urban studies and land and property development

## RESEARCH The Faculty of Built Environment



Year	No. of projects		
	F vote	Fundamental	IRPA & others
1999	12	-	2
2000	19	-	-
2001	14	-	-
2002	6	-	-
2003	7	2	-
2004	9	2	-

strength derives from the fact that each of its undergraduate programme enjoys recognition from the local professional body that regulates and controls the standards, on top of the recognition from the Public Services Department. Following the accreditations from local bodies, the programmes went on to secure accreditation from associated international bodies. This started with the Building Surveying degree which obtained recognition from the Association of Building Engineers, UK in November 2001, followed by the Quantity Surveying degree

which obtained the Royal Institution of Chartered Surveyors (RICS, UK) accreditation in February 2003, followed by the Estate Management degree in December 2004 and, most recently, the Architecture degrees by RIBA in February 2005. Assessments for these accreditations are based on a number of criteria related to academic performances, of which research forms an important component. This achievement is all the more significant because no other similar programmes in Malaysia has achieved this.

## Laying the Infrastructure for Research and Consultancy

THE notion of *sustainable built environment* underlies the faculty's

every approach to research. In terms of the specific interests, research areas have been identified to be in line with the faculty's research directions and the expertise available.

Currently, the specific areas of research interest are Architecture, Building and Real Estate. *Refer to illustration*

At implementation level, a research project will typically come under one of the five research centres that currently exist at the faculty with each centre being run by its own research focus group.

The faculty in 2003 founded the *Built Environment Studies and Research Institute (BESTARI)* with the roles to

coordinate and monitor research output from the above centres. This institute is being firmed up to carry responsibility for the advancement of research within the faculty. The faculty's goal is to raise this institute to the position of a regional leader and a global player for research in built environment within the next decade or so. The institute is also involved in assisting and facilitating postgraduate students on research study programmes.

SO far, the faculty has conducted a total of 73 research projects in the various different branches of the built environment. The table above shows the breakdown by year.

"The faculty's goal is to raise this institute to the position of a **regional leader** and a **global player** for research in built environment within the next decade or so."

Area of Research Interest		
Architectural Acoustic	Building and Construction	Corporate Real Estate
Architectural Lighting	Economics	Information Technology in Real Estate
Building Technology	Building Construction and Technology	Property Management
Conservation Studies	Building Control	Real Estate Development and Environment
Housing and Settlements	Building Laws	Real Estate Finance
Information Technology and Architecture	Building Maintenance	Real Estate Investment
Integrated Building System	Building Materials	Real Estate Laws
Post Occupancy Evaluation	Building Performance	Urban Land Economy
Sustainable Design	Building Services	Real Estate Valuation
Theory and History	Conservation and Restoration of Buildings	
Urban Design	Facilities Management	
Vernacular Architecture	Fire Audit Management	
	Information Technology in Construction	
	Procurement and Contract	
	Project Management	
	Safety and Risk Management	

We provide below a listing of the most recent research projects undertaken at the faculty:

The Perceptions of Clients, Consultants and Contractors on the Issues of Work Site Safety in Construction Industry in Malaysia (2005) *by Khairuddin Sulaiman*

Use of Waste Heat from Residential Air-Conditioner in a Hot Humid Climate (2005) *by Zunaibi Abdullah*

Urban Housing Land Supply in Peninsular Malaysia (2004) *by Ibrahim bin Mohd. @ Ahmad*

Thermal Performance of Buildings Under The Malaysian Climate (2004) *by Assoc. Prof. Sreenivasaiah Purushothama Rao*

Study on the Malay Built Environment Heritage (2004) *by Assoc. Prof. Dr. Ahmad Ramly*

The Use of Wood Material, Defects and Damages on Malay Traditional House in Melaka (2004) *by Nor Haniza Ishak*



The Planning of Construction Projects in Malaysia (2004) *by Norhanim binti Zakaria*

The Documentation and Report on the Conditions of Old Houses of Estate Manager in Selangor (2004) *by Imaduddin bin Abdul Halim*

Signage – A reconciliation of a Healthcare Workplace Strategy (2004) *by Mohamad Rizal bin Baharum*

Study on the Sources of Delay in Construction Projects (2004) *by Mohd. Suhaimi bin Mohd. Danuri*

Benchmarking of IT Investment in Construction Industry (2004) *by Faizul Azli Mohd. Rahim*

The Importance of Having Green Space in Residential Area (2004) *by Hazreena Hussein*

Knowledge Strategies and Practices in Property Consultancy and Valuation Surveyors Firms in Malaysia (2004) *by Yasmin Mohd. Adnan*

Valuation of Contaminated Land : What is The Best Approach (2003) *by Anuar Alias*

The Royal Town of Klang : Selected Heritage Buildings (2003) *by Mastura Adam*

Kajian Sejarah Senibina, Pemuliharaan dan Pendokunetasian Terhadap Rumah-rumah Warisan Terpilih Melaka (2003) *by Zuraini binti Md Ali*

Kajian Kepentingan Ruang-ruang Awam Sebagai Katalis Bagi Melahirkan Semangat Kejiranan Di Kawasan Rumah Padat (2003) *by Assoc. Prof. Saari Omar*

Use Of Waste Heat From Residential Air Conditioner in A Hot-Humid Climate (2003) *by Zunaibi Abdullah*

Perancangan Projek Pembinaan Di Malaysia (2003) *by Norhanim Zakaria*

Property Marker Research – A Study On Current Methodology (2003) *by Rosli bin Said*

Penggunaan Bahan Binaan Kayu, Kecacatan dan Kerosakan pada Rumah Tradisional Melaka (2003) *by Nor Haniza bt. Ishak*

Analysis of Building Defects in a Tropical Climate with Official Reference to Kuala Lumpur, Malaysia (2003) *by Norhayati binti Mahyuddin*



### Consultancy

FBE has also been engaged in consultancy works. The level of activity achieved in this area has been aided by the fact that all the four built environment disciplines under the faculty are profession-based and therefore relate directly to practices in the industry they are connected with. A consultancy service centre has been set up to coordinate consultancy services activities. The centre synergises the professional resources of the faculty to offer professional consultancy to the internal client (i.e. the university) as well as to the industry at large in the realms of architectural and surveying fields in planning, estate management, building design, and maintenance and project management.

### Reinforcing the Research Awareness

THE need to encourage cross-fertilisation of ideas, knowledge and experiences on research led BESTARI to introduce the Monthly Academic Forum this year. The forum is meant to benefit not only the faculty lecturers and researchers but also the postgraduate students on research study programmes; in the latter's case, this forum comes as

additional to the seminar that every postgraduate student is required to give as part of the research progress report. At the moment, lecturers from the faculty take turn to present and lead discussion on research-related topics; in the future, extension to postgraduate students for this role is possible.

Recently, IPPP responded to the Faculty's request for a briefing on how to apply for IRPA funding. The Faculty is particularly grateful to the former for this and believes that such an exercise has raised research awareness significantly and contributed to improved enthusiasm. It is probably no coincidence the fact that the faculty has recently received a large number of applications for Vote F funding for the coming funding cycle.

As a parallel development, there have been efforts among members of the faculty to explore the 'non-traditional' sources of funding for research. Such initiatives seem to be gathering momentum and have led to collaborations with private sector such as in the Study on Formula 1 Circuit in Bahrain, as well as the applications to new funds sources such as Felda and NAPREC.

## Looking Ahead

AS the youngest faculty in the oldest university in the country, FBE needs no reminder of the challenges to perform well on research. Nonetheless, the faculty is responding well to this responsibility as judged from the awards and recognitions received by staff members. The existence of BESTARI and the presence of young and vibrant staff should give the promise of even better years ahead. The faculty's latest move to produce an international refereed journal can also be seen in the same light. The journal, the Journal of Design and the Built Environment, is expected to be published before the end of the year.

## Awards and Recognitions Received

THE following are recognitions of the efforts received since 2000.



*Honorary Mention at UNESCO (Conservation (Public Sector)), 2000 – Rehabilitation of Penghulu House*

*Honorary Mention (Badan Warisan Malaysia), 1999 – Rehabilitation of Rumah Tok Su (Traditional Malay house)*

*Honorary Mention (IPPP Research Exhibition), 2001 – Rehabilitation of Balai Besar Palace, Kedah Darul Aman*

**Design/Innovation Competition at Science and Technology Expo, 2002 (UM):**

Bronze Medal – Documentaation and Rehabilitation of Dewan Tunku Canselor, UM.

Bronze Medal – Documentation and Rehabilitation of Rumah Gopeng, Perak.

Bronze Medal – The Use of Multimedia as Problem-based Learning Tools in the Teaching and Learning of Architectural and Design-based Subjects

Bronze Medal – Documentation and Dilapidations Study, Conservation and Refurbishment of Selected Buildings in Jasin, Melaka.

**Best Article Award – Journal of Surveyors Malaysia:**

**1999-** Decision Analysis in Land Appraisal

**2002-** Ficus and the Effects of Its Growth on Building

**Design/Innovation Competition at Science and Technology Expo, 2002 (UM):**

Gold Medal – Study on the History, Rehabilitation and Documentation of Selected Heritage Houses in Melaka

Gold Medal - Energy Saving Cloth Dryer

Bronze Medal - Transformation of Mosque Design in Malaysia

# TECHNOLOGY TRANSFER & COMMERCIALIZATION UNIT (UPTK)

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& Commercialization Unit,  
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TECHNOLOGY Transfer & Commercialization Unit (UPTK) was formed for the first time on the 1<sup>st</sup> July 1998. It was then known as *Jabatan Pembangunan Perniagaan*. This unit was formed to commercialize products, services and technologies created through research in University of Malaya (UM). Initially the management of this unit was placed under the Chancellery but was later assimilated to Research Management and Consultancy Unit (IPPP).

The **objectives** of UPTK are:

Develop commercially the findings of UM's scientific and technological research

Serve as centre for information on all matters related to business development in UM.

Generate income for UM through commercialization of technology, education, research and infrastructure.

Oversee all activities involving commercialization and joint ventures.

Assist in heightening science culture and social technology through transfer.

The two **activities** of UPTK to date are spreading of information and

commercialization of research and resources within the University. To spread information, UPTK has set and managed a **database** of information on:

Management of patents and technological transfer.

Commercialization of products and ideas that can be commercialized.

Financial resources within and outside of the University for Commercialization Contracts and consultancy, and joint venture projects.

Under the commercialization of research and resources within the University activity, UPTK shall:

**Prepare the proposal for research commercialization projects.**

**Obtain the funding.**

**Manage and execute commercialization projects.**

**Manage the registration for patents and trademarks.**

**Organize seminars/workshops/conferences related to commercialization of intellectual property and technology.**

## UPTK Commercialization Projects

Oil Palm (with Boustead Holding Sdn. Bhd.)

Commercialization of banana seedlings (Biological Sciences Institute, ISB)

IT Productivity Centre

Chromium Catalyst (Science Faculty)

Poly-urethane (Science Faculty)

Film Making - Johnny Bikin Film (Media Department)

Re-development of Section 12

Commercialization of UM Bus Diagnostic Kit





## LIST OF MEDALS WON BY THE MALAYSIAN UNIVERSITIES AT ITEX. GENEVA 2005

University	Gold	Silver	Bronze
<b>Universiti Malaya</b>	<b>19</b>	<b>11</b>	<b>3</b>
Universiti Sains Malaysia	6	2	-
Universiti Putra Malaysia	5	5	3
Universiti Teknologi Malaysia	5	3	2
Universiti Teknologi MARA	4	5	3
Universiti Kebangsaan Malaysia	2	8	3
International Islamic University Malaysia	2	2	1
Kolej Universiti Sains & Teknologi Malaysia	2	1	4
Universiti Malaysia Sabah	1	2	2
Kolej Universiti Teknologi Tun Hussein Onn	-	2	2
<b>Total</b>	<b>46</b>	<b>41</b>	<b>23</b>

## About This Bulletin

The Bulletin is the official R&D magazine of University of Malaya and is published by IPPP. It covers research issues and events that take place across the university campus. It also features special topics that are of relevance and interest to researchers in various fields of studies and disciplines. It is hoped that this bulletin provides the platform for interaction between researchers and management. The opinions and views in this bulletin are not necessarily those of IPPP. Acceptance and publication of articles in this bulletin does not imply recommendations from IPPP.

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# EKSPLO



## PENYELIDIKAN REKACIPTA INOVASI

**14 Hingga 16 Jun 2005**

• 9pagi - 5petang

**17 Jun 2005**

• 9pagi - 6petang

Aras 1, Bangunan Peperiksaan  
Universiti Malaya

[www.ippp.um.edu.my](http://www.ippp.um.edu.my)



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