

Chem Eng *focus*

May 2011
vol 4, issue 2



the HISTORY project

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recognised as the best employer

Chinese Government Award for
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Bootcamp for Marine Metals
Makes them Tough

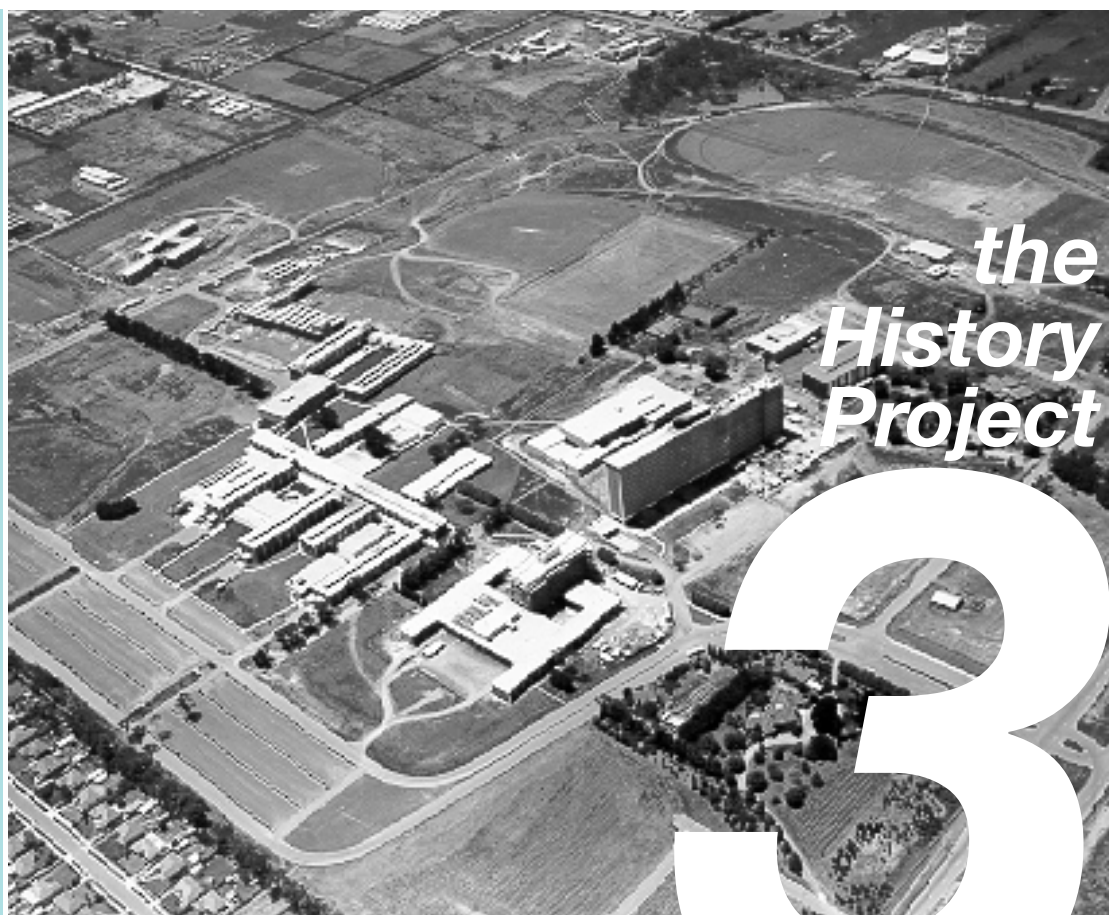
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MONASH
University

May 2011

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DAIRY INNOVATON

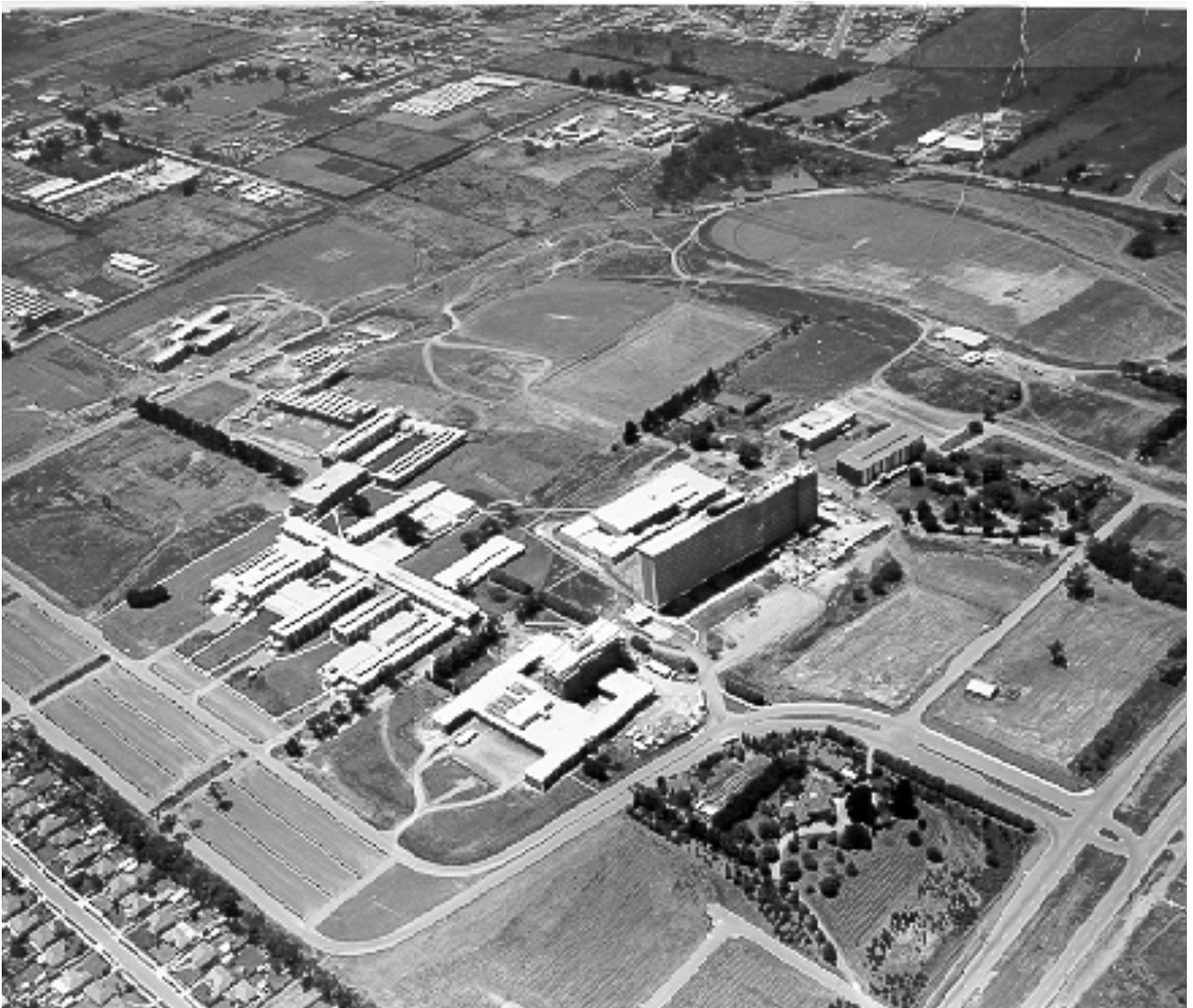


AUSTRALIA



GlaxoSmithKline





Engineering History Project

Semester 1, 2011 marks the 50th anniversary of the first intake of students at Monash University. On 13 March 1961, 363 students arrived at what was then a much muddier, less developed Clayton campus, eager to begin their studies at Melbourne's new university. Among these students were a small handful who were studying Engineering.

In order to celebrate and mark the achievements of the Faculty of Engineering over the past 50 years, a history has been commissioned. The history has been launched takes the form of a dynamic website that will enable visitors to the site to journey through 50 years of Engineering at Monash. It features written text, images, documents and oral histories – all of which combine to reveal the history of the Faculty of Engineering.

In order for this history to accurately reflect the many different experiences of the Faculty of Engineering we need your help. We would like you to tell us about your student days here at Monash and we have developed an online survey specifically for this purpose. It should take you around 20 minutes to fill out and the questions are mostly open ended – we want to hear about your time in the Faculty of Engineering. 📧

To complete the survey, please go to the following link:
<http://www.surveymonkey.com/s/YDBL2C9>

ABOVE: Aerial view of Clayton campus, June 1965 SOURCE: Monash University Archives

2011 marks the 50th anniversary of the first intake of students at Monash University



Were you a student at Monash in the 1990's?

ABOVE: Aerial view of Clayton campus, 1990's
BELOW: Dean of Engineering Professor Peter Darvall 1992

SOURCE: Monash University Archives



The 1990's were a time of enormous change for tertiary education in Australia. The introduction of HECS in 1989 heralded the end of free university education, and the impact of government reforms saw many universities grow larger through mergers and the increased participation of international students.

Shifts towards part-time study and more dependence on part-time work impacted on student culture and campus life, and new technologies changed the nature of teaching and learning.

Were you a student at one of Monash's campuses in this important period?


If so, Professor Graeme Davison and Dr Kate Murphy of the School of Philosophical, Historical and International Studies in the Faculty of Arts would like to hear your story.

Davison and Murphy are writing a history of Monash University, to be published next year to commemorate the 50th anniversary of the first intake of 347 students at Clayton in 1961. The history will span the founding of Monash in post-war prosperity; the baby boom and growing demand for higher education; the student revolt of the late 1960s and early 70s; and the reforms that have transformed Monash into Australia's largest and most international university.

The authors are seeking written contributions, in the form of memoirs, short or long, suggestions on sources, and photographs from alumni of the 1990s.

Contributors will be asked to write in an informal and candid manner and in as much detail as they choose.

"We would like to know what you recall as most significant: how Monash influenced your life as well as how your experience may illuminate the history of the University," Dr Murphy said.

For more information and guidelines for written submissions contact Graeme Davison or Kate Murphy at historyofmonash@arts.monash.edu.au or phone +61 3 9905 1184. 



**Low cost
paper based
blood typing
will be
especially
useful in
developing
countries**

Dr Mohidus Samad Khan

Recognition for PhD Excellence

Dr Mohidus Samad Khan from the Department of Chemical Engineering has received the Mollie Holman Doctoral Medal for best Monash PhD Thesis and the Kenneth Hunt Medal for best Engineering PhD Thesis.


Dr Khan's PhD thesis, entitled "Bioactive Papers: Printing, Activity and Stability", will contribute to the cheap manufacturing of high quality bioassays for health and environmental applications and low cost paper diagnosis, such as paper diagnostics for blood typing. This will be especially useful in developing countries.

"The research objective was to investigate the fundamental and applied issues to develop stable and functional bioactive papers and paper fluidic devices for health and environmental diagnostics," explains Dr Khan.

The Mollie Holman Doctoral Medal is awarded to PhD students who have fulfilled all requirements for the degree and are judged to have presented the best doctoral theses of the year.

"The Mollie Holman Doctoral Media is a highly prestigious award to recognise the hard work and research excellence in PhD. This recognition inspired and encourages me to think more creatively, work harder and continue performing cutting edge research," said Dr Khan.

Dr Khan has received a Post Doctoral Fellowship Award from the Department of Chemistry at McGill University, Montreal, Canada where he will continue his work on Bioactive Papers as part of NSERC-CRSNG's Bioactive Paper Network. His current research project aims to develop bioactive filter paper and paper sensors to detect and deactivate pathogens; it also aims to develop 3D molecular modelling of antigen-antibody interaction.

Please visit the Monash Research Graduate School for more information about the Mollie Holman Doctoral Medal. 

Vice-Chancellor
Professor Ed Byrne
accepts the UniJobs
Best University to
Work For Award



Monash named Australia's best university employer

The staff and postgraduate students of the Department of Chemical Engineering at Monash University have long known that this Department is the best place to work for but now this has been confirmed by Monash University taking out the "Best University to Work For" award, based on a national survey of staff from all Australian universities.

From mid-November last year until Christmas eve 2010, staff from every university in Australia were given an opportunity to anonymously rate their university against a set of criteria on the *Best Universities To Work For Award* website.

The initiative, created by UniJobs.com.au, was designed as a way for university staff to critique the management style and working conditions of their employer, and highlight problems they felt needed to be addressed by all Australian universities.

Monash University scored the highest of all Australian universities, and averaged high scores across topics such as employee benefits, flexible working hours, disability access and overall staff satisfaction.

Monash Vice-Chancellor Professor Ed Byrne accepted the award presented by UniJobs Director Jarrod Kanizay who applauded the efforts of Monash University management and spoke highly of the Vice-Chancellor's enthusiasm for the initiative.

The award received over 31,600 nominations from all Australian universities, making it one of the most thorough and far-reaching university staff attitude surveys to date.

Scores were determined by averaging the total number of points received in each category, ensuring that universities were judged fairly across the board.

Mr Kanizay believes that the initiative is an important tool for universities.

"The key to the award's success is the anonymity of each nomination, as well as the personal feedback form we provide," he said.

"What we are finding is that university staff are taking it upon themselves to proactively assess their employer, not only with things they want changed, but also with positive comments about their happiness and well being.

"It has become an incredibly useful resource tool for universities that want to gauge the reactions of their staff in real time".

Following Monash in second spot was fellow Group of Eight Member University of Queensland, with the University of Southern Queensland third.





Bootcamp for Marine Metals Makes them Tough

Parama Chakraborty
Banerjee

Parama to compete in Early Career Researcher Awards

Each year the CRC Association presents Awards in an event called, "Showcasing Early Career Researchers", a highlight of the annual CRCA conference. This year's conference will be held in Brisbane and will feature one of CAST's postgraduate researchers, Parama Chakraborty Banerjee. Parama will present her work on "Laser-assisted surface modification and silane coating to improve the corrosion resistance of ZE41 magnesium alloy". Except it will be rebadged as, "Bootcamp for Marine Metals Makes them Tough."

The Showcasing event recognises the value placed on postgraduate researchers

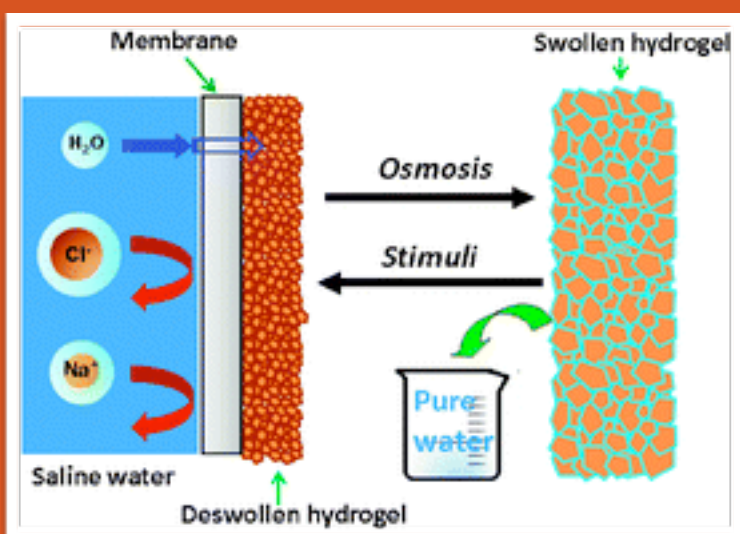
educated within the operating environment of CRCs, and other organisations that are members of the Association. The event highlights the achievements of outstanding early career researchers and engineers who make a substantial contribution to collaborative research.

Eight early career researchers were selected to attend the 2011 CRC Association Conference in Brisbane, providing the opportunity to gain a broader perspective of the CRC Program and collaborative research in other CRC-like organisations, as well as to meet early career researchers from different disciplines. There is also the opportunity to attend a special complimentary workshop on media skills.

Good luck Parama! 🍀

Project Summary:

ZE41 magnesium alloy is subjected to a rigorous regime of laser surface melting and sol-gel coating to make it fit for its role in naval helicopters. This project combats the severe corrosion problems of the gear box housings of certain Royal Australian Navy helicopters. The outcome of this project will not only save millions of dollars currently spent addressing this corrosion issue, but also will provide a foundation for the improvement of corrosion resistance of this alloy and increase its potential use. The chrome free environmentally friendly coating developed in this study is a new step towards a greener world



New polymer hydrogels offer step forward in desalination

By Will Dennis, Publishing Editor
RSC Publishing

Chemists working in Australia have used polymer hydrogels as a 'draw' agent in a desalination process.

Forward osmosis (FO) desalination is an emerging area of interest for chemists as it provides a low energy method of obtaining salt free water from the sea. Typically in FO, saline water is separated by a membrane from a 'draw' solute. Water passes through the membrane from the saline side to the 'draw' solute via osmosis. The water is then recovered from the 'draw' agent using distillation.

Now Huanting Wang and colleagues at Monash University have investigated the use of polymer hydrogels as the draw agent for FO desalination. Polymer hydrogels can reversibly change their volume when exposed to certain stimuli such as temperature and pressure. This gives them an advantage over traditional draw agents as they can potentially be recycled and release the water at lower energy and therefore cost.

The team found that it is indeed possible to release significant amounts of water from the polymer hydrogels tested and are investigating other stimuli, such as light, to further increase the efficiency of this process.

Read more about this exciting advance by downloading the full ChemComm communication today and let us know what you think. 🍀



“Recognition of his outstanding achievements and contributions to the field of Biochemical Engineering”

The Society for Applied Biotechnology



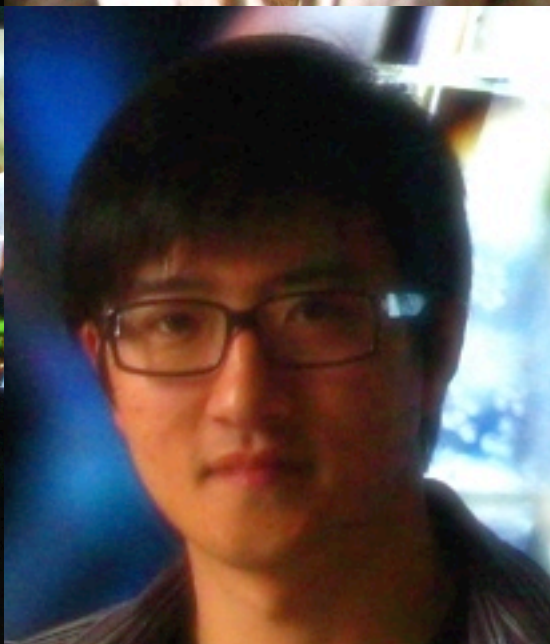
2010 Young Bioengineer Award

Dr. Ravichandra Potumarthi, Research Fellow, Department of Chemical Engineering, has received “Young Bioengineer Award 2010” by Society for Applied Biotechnology, India in recognition of his outstanding contributions to the field of Bioengineering. He was honoured with Medal and certificate and invited to deliver an Award Lecture in receipt of the award during Society for Applied Biotechnology annual convention on “Biotechnology, Bioinformatics and Bioengineering” held during 17th-18th December 2010, Dharmapuri, Tamil Nadu, India. His citation includes “for the creative development of a scientific contribution which has been determined to be of significant value in the advancement of bioengineering”. The Society for Applied Biotechnology also awarded “Fellow Award – 2010” to him. The award certificate reads as “in recognition of his outstanding achievements and contributions to the field of Biochemical Engineering”. 🏆

Clockwise from Top

Left

Na Hao, Xu Li, Duo
Wu and Junfei Tian.



Chinese Government Award for Outstanding Self-Financed Students Abroad

Four students studying within the Department of Chemical Engineering, Faculty of Engineering at Monash University have been awarded Chinese non-government sponsored student scholarships from the China Scholarship Council.

The China Scholarship Council is the Chinese Ministry of Education's non-profit organisation that provides student financial aid to Chinese citizens and foreigners to study abroad or in China.


Developed in 2003, the awards are based on academic merit and encourage international students to achieve first-class results during their studies. Awardees receive \$5000US to further develop or finance their studies.

The award further encourages international students to return to China for work or to serve the

country in other channels after receiving their degree abroad.

This year, a total of 504 awards were given worldwide, with 35 Chinese students in Australia receiving awards. Of the 35 students in Australia, seven are engaged with studies at Monash University and four are studying Chemical Engineering with the Faculty of Engineering.

Congratulations to Na Hao, Duo Wu, Junfei Tian and Xu Li for their outstanding achievements.

To be applicable for the Chinese Government award for outstanding self-financed students abroad, the student must be studying a PhD degree, be under the age of 40 and self-financed. 

ALUMNI PROFILE

Ardi Sastrohartoyo

**Bachelor of Engineering in
the field of Chemical
Engineering, 2005**



Ardi Sastrohartoyo graduated from Monash University with a Bachelor of Chemical Engineering in 2004 and is now working with Orica Mining Services as a Senior Technical Superintendent.

Based in Singapore and responsible for 50+ site operations in Asia including Malaysia, China, Hong Kong, India, Indonesia, Mongolia and the Philippines; Ardi exemplifies the notion that an Engineering degree can take you anywhere.


Following his graduation, Ardi worked for four years with Orica in

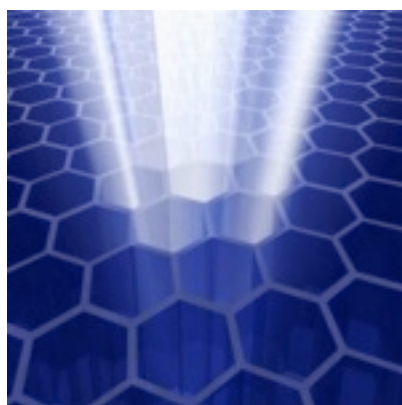
Newcastle, NSW. He was fortunate enough to experience a broad array of jobs, working as a Process Risk Specialist Australia/Asia, HS&E Advisor, Technical Superintendent South East Australia and Process Engineer at an Ammonium Nitrate Manufacturing Plant in Kooragang Island.

Orica is a global market leader of chemical manufacturing and provider of commercial blasting explosives & blasting services with 15,000 employees across 6 continents in 50+ countries.

Whilst working, Ardi has also gained his Chartered Professional

Engineer status with IEAust, IChemE and RACI.

Ardi believes his career has already been rewarding, as he has had the opportunity to work as a Chemical Engineer across many industries such as chemical manufacturing, mining and explosives with global international opportunities. 

**How to Apply**

Apply by 11.30pm Beijing time on Friday 15 July 2011.

Visit:

<http://www.austcham.org/resources/austcham-china-scholarship-programme>

The AustCham Scholarship aids in fostering the next generation of Sino-Australian business leaders.

The AustCham China Scholarship is an initiative of AustCham Beijing, developed in response to Australia's growing economic, cultural and political relationship with China. The scholarship is designed for students who have a long term passion for strengthening this relationship through their business or cultural pursuits.

The goal of the AustCham China Scholarship is to foster the next generation of Australia - China business leaders. AustCham Beijing, along with its partners, believes that the development of China literate Australian business leaders is key to forming stronger long term bilateral links between the two countries.


The scholarship will achieve this by placing talented Australian graduates in key Australian industries in China through its comprehensive language, mentoring and work placement programme.

Purpose

The purpose of the programme is to provide a comprehensive career development platform for Australians with a passion for developing a career in China or with a China focus. For these individuals the programme has been tailored to provide maximum industry exposure, networking and learning opportunities on a professional, cultural and personal level.

Engineering working sectors

Engineering - Chemical, structural, civil, mining, electrical, mechanical (non medical)

Minerals and Energy - Includes backgrounds in engineering specific mining degrees, geology, environmental science, mining technology, renewable energy. 

Monash Researchers discover super antioxidant from Acacia bark.



In 2002, the Monash-Juken joint R&D project discovered that the antioxidant activity of an Acacia bark extract was some ten times stronger than the antioxidant activities of the commercial products, Enzogenol (New Zealand), Flavangenol (Japan) and Pycnogenol (Europe and USA) all derived from Pinus bark extracts. Wood One recognised the possible commercial implications of this important discovery and contracted a number of Japan's foremost universities and research laboratories to undertake a series of cellular and test tube tests as well as extremely expensive clinical tests to prove the safety and effectiveness of the Acacia bark extract for human consumption. In March 2007, after the test work gave positive results, Wood One established the mimozax Company to commercialise the Acacia bark extract as an antioxidant supplement product under the name of "ACAPOLIA", and this product has been on the market since July 2007.

The Japan Preventive Association of Life-style Related Disease stated that the Japanese market for health foods and supplements in 2010 will be about AUD\$253 billion! The market volume therefore is very large and in order to ensure the safety of health foods and supplements available to the Japanese public, the Japanese government required as a matter of urgency the establishment of a body to certify the high quality and the effectiveness of health foods and supplements in terms of the guidelines set by the government and health foods related industry associations. Since 1 July 2010, the Japan Health Foods and Supplements Information Centre Inc. (Jahfic) commenced the system of certifying the safety and the effectiveness for health foods and supplements in terms of the Natural Medicines Comprehensive Database.

The Natural Medicines Comprehensive Database has been recognized world-wide as the scientific "gold standard" for evidence-based information on health foods and supplements, officially adopted by the Japan Medical Association and employed by government departments, medical and food related associations in forty major countries including the USA, Canada, Australia and many European countries. Leaders in conventional medicine as well as in complementary, alternative and integrative medicine recognize the Database as the "go-to" resource for the most complete and practical information.

ACAPOLIA was certified by Jahfic as the first "High Quality" product with Certificate Number 100714003001 showing the date of issue as 14 July 2010 just two weeks after certification commenced. On 21 July 2010, ACAPOLIA was described as the first example of a product given a "High Quality Certificate" in the special issue of "The Health Industry News in Japan".

The Monash team consists of Dr Yoshi Yazaki an authority on wood and natural products chemistry, Prof. Frank Lawson and Dr Peter Uhlherr both chemical engineers from the Chemical Engineering Department, Clayton. The Monash team collaborated with Mr Yusho Nakamoto, the late Mr Toshihiko Tsunoda, Ms Keiko Ono, Ms Naoko Kurushima and Mr Tomoyuki Matsumae from Wood One in Hiroshima and with Mr Takeshi Kataoka, Mr Tohru Yamaguchi and Mr Sohsuke Ogawa from mimozax in Hiroshima. Mr T. Kataoka who is the President of the mimozax Company said that the ACAPOLIA business has been doing well in Japan and that mimozax is expanding the ACAPOLIA business into South Korea and Malaysia. The aim eventually is to expand into China. The long term aim is for mimozax to grow the health food and supplements business with additional products some of which are currently under development.

The Story: "ACAPOLIA" is a product resulting from the international collaboration between a Japanese company based in Hiroshima, Wood One (formerly Juken) and members of the Department of Chemical Engineering, Monash University, Clayton, Victoria, Australia initially set up to look at the possibility of using the company's forest waste products from its plantations in New Zealand! ♻️

CONTACT:

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Department of Chemical Engineering
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Tel: (613) 9905 5395, Fax: (613) 9905 5686

News & congratulations

Doctor of Philosophy

December 2010- May 2011

Congratulations to students who have completed the degree of Doctor of Philosophy,

Melvin (Xiao Le) Tan (KH)

Na Hao (PW)

Masters of Engineering Science (Research)

December 2010- May 2011

Congratulations to students who have completed the degree of Masters of Engineering Science (Research)

Yong Sun (PW)

Update - 50th Anniversary Gala Dinner

Thursday 3 November 2011

- Venue: Melbourne Town Hall
- Partners welcome
- There will be a minimum of speeches and plenty of opportunity for meeting up with old friends.

In the mean time we need your help. The Organising Committee are seeking Year Group Captains. We are looking for volunteers from different year groups to help track down colleagues and coordinate tables. If you can assist then please contact Nick Heath <nmheath@bigpond.com> or Roger Olds <roger_old@hotmail.com>.

Changes to Graduation Application Process

As of Thursday 24th March 2011, all Monash students, both in Australia and offshore, will be able to complete their application to graduate via the Web Enrolment System. They can view the status of their application, update their details and arrange academic dress hire remotely.

<http://www.monash.edu.au/graduations/>

ACADEMIC DINNER

The Society of Monash University Chemical Engineer's Annual Academic Dinner will be held on the 22nd of September 2011. Tickets will be on sale from the beginning of next semester. \$60 for members and \$70 for non members. Bring your friends, it will be a night to remember




Applying for a Postgraduate Research Scholarship

within the Department of Chemical Engineering



Right
Con Dimitrakakis
undertaking
membrane research

Postgraduate Research Scholarships are available for full-time research at postgraduate level for study at the Department of Chemical Engineering. Scholarships are available for both living allowance stipend and tuition-paying scholarships. There are two scholarship rounds each year; the main central selection round, which closes on 31 October and a mid-year scholarship round which closes on 31 May. The eligibility criteria and instructions on how to apply can be viewed at this website: <http://www.mrgs.monash.edu.au/scholarships/apply/>

For general information on the projects please contact the relevant staff member or visit <http://www.eng.monash.edu/research/opportunity/list.php?dept=C> to download the project outline. 

Project Title	For more information
PhD scholarship - Bio Engineering Laboratory	Michael Danquah 990 53437
Research Fellow - Bio Engineering Laboratory	Michael Danquah 990 53437
PhD scholarship (in collaboration with CSIRO)	Sankar Bhattacharya 990 59623
Point-of-care (POC), human healthcare diagnostics and environmental sensors	Wei Shen 990 53447
Low Cost Oxygen Production using Oxygen Selective Adsorbents	Paul Webley 990 51872
Biogas Enrichment using Adsorption Processes	Paul Webley 990 51872
PhD Scholarship - Granulation and Superheated-steam drying of brown coal based granules	Dr Andrew Hoadley & A/Prof Karen Hapgood 990 53421
PhD Scholarship - Catalytic Application of Nanoporous & Nanostructured Materials	Dr. Akshat Tanksale 990 24388
CO2 Capture Adsorption Process Development	Paul Webley 990 51872
CO2 removal from Natural Gas - Opportunities for Adsorption Separation	Paul Webley 990 51872

Company participation

Would your company like to offer any of the following?
Vacation Work Experience to our undergraduate students?
Graduate Position (Undergraduate and Postgraduate)?
Speak to undergraduates students at a lunch time seminar about your company?

Then send an email to Lilyanne.Price@monash.edu with the details and she will get back to you shortly.

ChemEng Focus subscription

Would you like to receive future issues of ChemEng Focus?

If so, please email lilyanne.price@monash.edu and we will add you to our newsletter mailing list.

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Prof Paul Webley
Head of Department