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CHEMECA CONFERENCE

The broadening scope of chemical engineering

Chemical engineering is likely to be a key contributor of technical solutions for complex societal challenges of the future, according to John Chen, president of the American Institute of Chemical Engineers. One of these challenges he believes is the need of satisfying the world's energy requirements while maintaining environmental sustainability.

"These challenges will require great flexibility in their technical solutions and not be constrained by disciplinary boundaries," he told the delegates at the 2006 Chemeca Conference in Auckland last month.

While the traditional engineering disciplines of civil, mechanical and electrical engineering are all based on the science of physics, chemical engineering straddles physics, chemistry and – more recently – biology, he said.

"This broad scientific basis makes chemical engineering extremely versatile, able to seek out and apply discoveries from all the fundamental fields of science - ideally suited for the complex challenges."

Chen was the first keynote speaker at the conference which attracted about 250 delegates, mostly from universities in Australia and New Zealand.

Dr Raj Rajakumar, in his keynote address, outlined the work of the CSIRO's Light Metals Flagship. He said the flagship's research and development focuses on aluminium, magnesium and titanium, with the ores of all three found in abundance in Australia. He said the aim is to "double income and generate significant new industries by the 2020s, while reducing environmental impact".

As for aluminium, the flagship is developing better techniques for processing bauxite with high levels of silica (larger than 5%), as well as novel coatings for electrolytic cells and ionic liquids for aluminium production.

In magnesium, the flagship is working on improving yield and purity of the metal from the high-temperature separation



Professors Bill Svrcek and Anton Middelberg at the conference.

process.

Regarding titanium, he said Australia currently does not manufacture the metal. The flagship is looking at a cold spray technology for making titanium powder, with the aim of reducing manufacturing costs by half. He said if costs come down, titanium could be used more widely as its high corrosion resistance, high strength and light weight offer significant advantages over steel.

Prof Bill Svrcek from the Department of Chemical and Petroleum Engineering at Calgary University, Canada, presented an overview of how process simulation has developed in line with the rapid increase in computer capabilities. Today process simulation is facilitated by powerful small computers, flexible and user-friendly interfaces and sophisticated software systems. These computer systems allow more online monitoring and control.

While computers have become ever more powerful, he said, the biggest task for educators is to get students to understand the theory behind the simulation software programs. Students need to be able to interpret the simulation results based on the data input and the assumptions made by the programs, he told the delegates.

Prof Anton Middelberg outlined the work

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CHEMECA CONFERENCE

carried out at the University of Queensland's Australian Institute for Bioengineering and Nanotechnology. The research combines engineering, chemistry and biology, he said.

For instance, chemical engineers often deal with mixing and reactions of particles in vessels that are stirred. They generally take the particles as given and optimise the mixing and reaction processes. Biomolecular engineering increasingly looks at modifying the particles themselves as well, Middelberg said.

One major research area at the Institute is the creation of virus-like particles. These particles are noninfectious as they don't contain a virus. Instead, they could be used as carriers of drugs or vaccines to specific parts of the body.

Middelberg said the combination of engineering, chemistry and biology offers opportunities for new protein products and processes, and innovative materials and devices. Chemical engineering needs to cater for these opportunities by including more biology and chemistry in the curriculum.

He suggested that perhaps the first two semesters should be more general for students "to pick up the language", with classic core chemical engineering in third and fourth years, and further in-depth study at the postgraduate level. When asked what subjects might be cut to make room for the new subjects, he proposed thermodynamics.

Saving costs through optimising compressed air systems

Significant energy and cost savings can be made in compressed air systems by eliminating leaks and better matching supply and demand, according to James Neale from the University of Waikato in Hamilton, New Zealand.

Power savings of up to 40% were achieved through audits of compressed air systems at several sites, he told the delegates at the Chemeca Conference in Auckland last month.

While audits are currently covering mainly the supply side, he also incorporated the demand side.

In fact, he said the demand side should be optimised first, before attention is turned to the supply side. This is because any major changes in the demand profile can significantly alter the optimum specifications for the supply side.

The most important aspects on the demand side are air leak and artificial demand elimination, and peak load and pressure reduction.

Air leaks are a major source of loss. Neale found that the organisations in his research experienced up to 60% air loss through leakage, with the average loss being 20% to 25%.

The best practice for air leak loss is con-

sidered to be less than 10% of total air demand.

Artificial demand is defined as any use that is inappropriate or could be replaced by a more efficient alternative, for instance tank agitation, dust removal or powder transport. Initial capital costs may be cheaper when adding another piece of equipment to the existing air supply, but life cycle costs are generally much higher, Neale said.

Peak load reduction is important because the peak load determines the maximum available air flow. If the peak load occurs only over short periods of time, the system could be oversized and running inefficiently most of the time.

Once the air leaks, the artificial air demand and the peak loads have been addressed the system pressure can be reevaluated. Neale said in most cases the system pressure is set higher than necessary.

Once the demand side optimisation has been completed, any supply side modifications can be made accordingly.

By focusing on the whole system - demand, supply and distribution - savings opportunities can be identified that would be missed using standard supply based approaches, he said.

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CHEMECA AWARDS

Showcase of excellence

Eleven awards for excellence in chemical engineering were presented at this year's Chemeca Conference held in Auckland,

New Zealand, last month. The awards were hosted by Engineers Australia, IChemE in Australia, the Society of Chemical

Engineers in New Zealand (SCENZ), the Royal Australian Chemical Institute (RACI), and the Department of Chemical and Materials Engineering at the University of Auckland.

CHEMECA MEDAL

This is the most prestigious award in chemical engineering in Australia and New Zealand.

Recipient: **Prof John Ralston**, director of the Ian Wark Research Institute at the University of South Australia, and laureate professor of physical chemistry and minerals processing.

Ralston is an internationally recognised expert in colloid and surface chemistry and their application in metallurgical engineering and technology. His scientific contributions cover physical chemistry, colloid and surface chemistry, including mineral flotation processes, the surface chemistry of metal sulfides, and the static and dynamic wetting behaviour of solid surfaces.

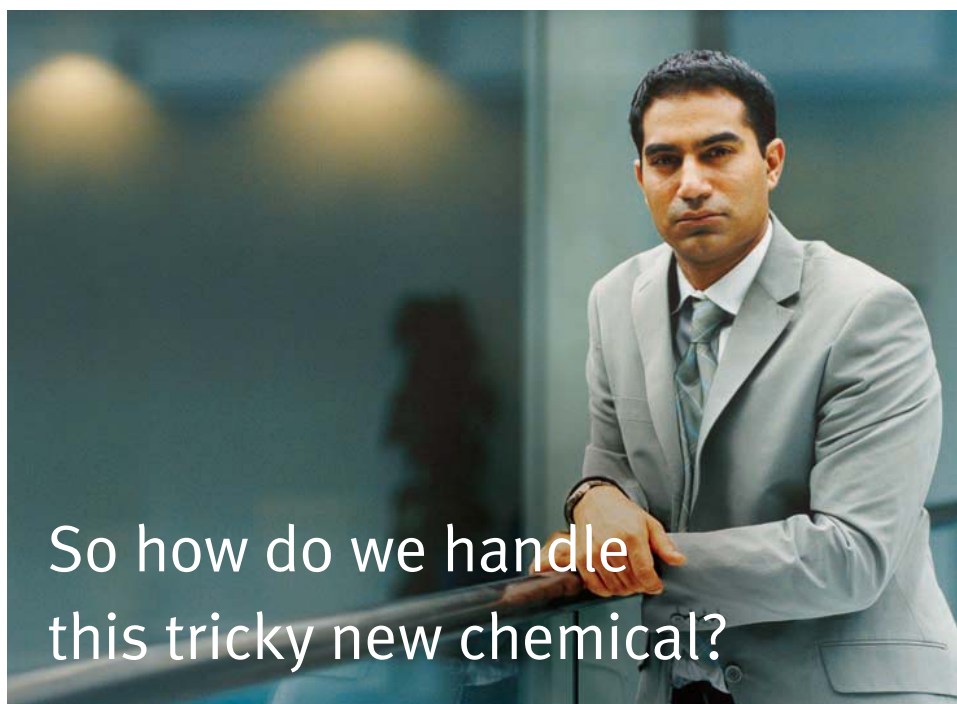
He provided the inspiration and motivating force for the establishment of the Ian Wark Research Institute, which is now known worldwide for its fundamental research in interfaces. The Institute is the ARC Special Research Centre for Particle and Material Interfaces and the headquarters of the Australian Mineral Science Research Institute.

ALSTOM AWARD

This award recognises outstanding contributions in the industrial field from a chemical engineer under 30. The candidate must be a member of Engineers Australia, IChemE, SCENZ or RACI.

Recipient: **Simon Kemp**

Kemp won the award in recognition of his excellent engineering support for many complex operating facility issues in Esso Australia's Gippsland operations.



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CHEMECA AWARDS

◀ He joined Esso Australia in 2002 as a plant surveillance engineer for the Longford Gas Plant. He undertook plant technical monitoring, maximising LPG recovery through plant optimisation, and improving plant safety and environmental performance.

He is now a mechanical integrity engineer supporting integrity programs for piping, pressure vessels and pressure safety valves for Esso's offshore facilities. He is also a member of the ExxonMobil Engineering Recruitment Team.

EXXONMOBIL AWARD

This award recognises significant ongoing contribution to chemical engineering through innovations or a series of related publications over a number of years.

Recipient: **Prof Jannie van Deventer.**

Van Deventer is the dean of engineering at the University of Melbourne and a key researcher in the fields of geopolymers and hydrometallurgy.

His recent work has targeted the flotation of coarse particles, a problem of key importance in the reduction of grinding energy in the minerals industry.

FLUOR AWARD

This award recognises exceptional management and leadership that has directly resulted in sustained corporate success over a significant period.

Recipient: **Dr Mervyn Jones**

Jones is an outstanding chemical engineer and Fellow of the Institution of Chemical Engineers who has reached the top in his profession in his 35-year career.

He has extensive experience in several

fields of classical chemical engineering and has held numerous management roles at all levels in the public and private sectors. He rose to become the Asia Pacific managing director of one of the largest engineering design firms in the world.

He was named in the "Top 100 most influential engineers" in Australia in 2005.

RIO TINTO AWARD

This award recognises outstanding applied chemical engineering.

Recipient: **Prof Kevin Galvin**

Galvin is a professor of chemical engineering at the University of Newcastle. After

graduating from the University of Newcastle with first class honours and the University Medal, he obtained a PhD from Imperial College London in 1990, working in Prof Briscoe's particle technology group.

He spent 10 years with BHP Research before joining the University of Newcastle as an academic in 1993.

Currently he leads a research group in the area of particle technology, with a strong focus on bubbles, drops and particles in process systems. He is distinguished for his work in particle separation, especially for the invention of the Reflux Classifier.

The Reflux Classifier has been commercialised through the Australian company Ludowici MPE, with machines being successfully operated in Australia, China and South Africa, in the processing of fine coal.

SHEDDEN UHDE AWARD


This award recognises services to the profession and practice of chemical engineering in Australian or New Zealand. A candidate must be under 40.

Recipient: **Dr Andrew Harris**

Harris graduated from the University of Queensland in 1996 with first class honours in chemical engineering, and obtained a PhD in engineering from the University of Cambridge. He is now a lecturer in the School of Chemical and Biomolecular Engineering, University of Sydney.

At the university, he is the foundation director of the Laboratory for Sustainable Technology.

Most significant during the past five years has been Harris' work on the BioRegional MiniMill, a modest scale, sustainable pulping process which produces high quality paper from agricultural residues. The MiniMill technology has been patented and is currently being commercialised in the UK and China. The MiniMill has been described by the World Wildlife Fund as a "visionary approach to paper production".




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CHEMECA AWARDS

INAUGURAL FONTERRA AWARD

This award recognises outstanding contributions in the industrial application of novel technology in the bioprocessing field from an individual or group of chemical engineers in Australia or New Zealand. Achievements may be in technical or management fields. The candidate must be a member of Engineers Australia, IChemE, SCENZ, or RACI, and under 50 years of age.

Recipient: **Prof Xiao Dong Chen**

Dong Chen is a Fellow of the Royal Society of NZ and an outstanding chemical engineer who, over his 13-year academic career has published 364 refereed articles, supervised more than 45 PhD and Masters students, and received numerous awards for his contributions in food and bioproduct engineering.

He was the professorial principal of food engineering at the Riddet Centre of Excellence for Food Research in New Zealand.

He has invented devices and test methods that have been applied to dairy processing and other industries.

He is the founding editor of the International Journal of Food Engineering.

In April 2006, he joined Monash University as the chair of Biotechnology and Food Engineering while being an adjunct professor of chemical engineering at the Chemical and Materials Engineering De-

partment, University of Auckland.

INAUGURAL WORLEYPARSONS AWARD

This award recognises personal commitment and leadership by a chemical engineer in the area of safety and/or the environment.

Recipient: **John Hayes**

Hayes was honoured for his outstanding leadership in risk assessment and management, and development of offshore safety cases for the oil and gas industry. The award also recognises Hayes' contribution to the success of Esso Australia in his role as senior process engineer.

Hayes joined Esso Australia in 1983 after graduating with first class honours in chemical engineering from Monash University. He has worked in a number of areas, taking up the role of risk assessment group leader in 2005. He is currently the Esso Australia Subject Matter Contact for risk assessment, offshore platform layout and escape/evacuation systems, and pressure relief systems.

Hayes has led the development of many aspects of safety cases for the existing 18 facilities in Bass Strait.

AKER KVAERNER DESIGN PRIZE

This prize recognises the outstanding Final Year Design Project from Australia and New Zealand chemical engineering

departments.

Recipient: the team from the University of Melbourne, Department of Chemical and Biomolecular Engineering: **Amon Carson, Suzanne Young, George Fordyce, and Andrew Fitzpatrick.**

The winning project was titled "Ammonia. Urea Complex".

The design project was based on the manufacture of urea, the most commonly used nitrogenous fertiliser. The context for the project was that the "company" was looking for growth opportunities in nitrogenous fertilisers, with the potential for local manufacture to replace imports. The team was to provide a report to the Board outlining the feasibility of developing such a facility.

R K MURPHY MEDAL

The R K Murphy Medal is the most prestigious prize awarded by the Industrial Chemistry Division of the RACI in honour of the memory of Dr Robert Kenneth Murphy who was one of the founding fathers of applied chemistry and chemical engineering in Australia. "Doc" Murphy started the first course in chemical engineering in Australia at Sydney Technical College and was a founding member of the RACI.

Recipient: **Robert Ryan**

Ryan won the prize in recognition of his sustained and outstanding contributions to the profession and achievements in the field of industrial chemistry, and to the profession through activities in the RACI.

JOHN A BRODIE MEDAL

Engineers Australia's John A Brodie Medal is awarded for the best paper in chemical engineering presented at the Chemeca Conference.

Recipient: **Phillip Schwartz** from CSIRO Minerals, and **John Lee** from BP Refinery (Bulwer Island) for their paper "Simulation of the BP FCC regeneration: Coke combination and temperature distribution".

A new award for teaching in chemical engineering will be introduced next year. It will be known as the Caltex Award.

Chemeca 2007 in Melbourne

Chemeca 2007 will be held in Melbourne on 23-26 September. Abstracts are now invited for paper and poster presentations. Abstracts of no more than 250 words should be submitted online at www.chemeca2007.com.au. The deadline for receipt of abstracts is Thursday 1 February 2007.

An invitation to submit a full paper will be issued once all abstracts have been reviewed. The deadline for receipt of full papers is Wednesday 9 May 2007.

The conference office can be con-

tacted by phone 03 9682 0244, fax 03 9682 0288, or email chemeca2007@icms.com.au.

The members of the organising committee are Russell Scott (chair), Lindsay Wheeler (deputy chair), Art Looi (treasurer), Martin Rhodes (technical program), Alan Easton (sponsorship and exhibition), Graeme Cox (promotions), John Taylor (industry participation), and Georgie Cooper and Clare Anderson (young engineers liaison).



CHEM-E-CAR COMPETITION

Auckland takes the prize

A team of chemical engineering students from Auckland University won this year's Chem-E-Car competition.

Run on 19 September as part of the Chemeca 2006 conference in Auckland, the student competition attracted nine teams – two from Auckland University, three from the University of Canterbury in Christchurch, and one each from Curtin University in Perth, Adelaide University, University of New South Wales and University of Newcastle.

In the competition small model vehicles that would fit into a shoebox had to travel a certain distance, carry a specified load and stop as closely as possible to the finish line. Both the distance – 17m – and the load – 500g – were given to the teams just before the race.

The challenge was to devise a propulsion system based on a chemical reaction as well as a breaking system that would cut the propulsion once the given distance was reached. The teams then had to run a series of tests to determine the amount of chemical ingredients for the required distance and load.

The teams also had to document their research and present it in poster form at the competition to be judged separately.

The winning car had two excellent runs, both times stopping only a few centimetres from the finish line.

The winning team used an electrochemical cell as power supply and a light-sensitive switch to cut the power supply. The light to the switch passed through a clear solution containing iodine and starch. These compounds normally react with one another darkening the solution causing the switch to be turned off. This reaction, however, can be delayed by S_2O_3 ions in the solution.

The team determined the amount of S_2O_3 necessary to delay the darkening reaction just long enough for the vehicle to travel the given distance.

The winning team consisted of R Chen,



Holding their winning car in front of their poster are the team from Auckland University (l-r back) E Ling, R. Chen, T Qui, L Wang, (front) Y K Ou-Yang and H Shi.

E Ling, Y K Ou-Yang, T Qui, H Shi and L Wang.

The runner-up was one of the Canterbury University teams, with another team from Auckland University coming third.

In the poster competition, the runner-up team from Canterbury University came first, followed by the winning team from Auckland University and the team from

Adelaide University.

The Chem-E-Car competition, conceived in the US by the American Institute of Chemical Engineers, was introduced to Australia in 2001 for the World Congress of Chemical Engineering in Melbourne by Prof Martin Rhodes of Monash University. Since then he has organised a race at every Chemeca.



NEWS

Chemical engineer to lead Academy

Prof Robin J Batterham, a professorial fellow in the Department of Chemical and Biomedical Engineering at the University of Melbourne, has been appointed president of the Australian Academy of Technological Sciences and Engineering (ATSE).

Batterham, who will assume the ATSE presidency from 1 January 2007, will lead an Academy of more than 750 Australian scientists, technologists and engineers committed to promoting the application of scientific and engineering knowledge for Australia's benefit.

Batterham was chief scientist to the federal government from 1999 to 2005 on a part-time basis. He remains a member of the Prime Minister's Science, Engineering and Innovation Council.

He has worked with CSIRO in areas such as mining, mineral processing, mineral agglomeration processes, and



Prof Robin Batterham

iron making.

From 1988, he has held senior positions in technology development with CRA Limited, now Rio Tinto Limited. During that

time, he led the development of a processing route for what is now recognised as the world's largest economic zinc mineralisation. He also contributed significantly to the HIs melt process to develop a novel direct smelting technology for iron making.

He is now a global practice leader for innovation at Rio Tinto, responsible for external R&D and for delivering step change technologies into the company's operations.

He is a past president of the Institution of Chemical Engineers and a recipient of the Kernot Medal from Melbourne University, the Chemeca Medal and the AusIMM Institute Medal.

Senior fellowship for teaching

A 2006 senior fellowship – to a maximum of \$300,000 – was awarded to Ian Cameron, professor of chemical engineering at the University of Queensland, to study "Engineering, science and practice: alignment and synergies in curriculum innovation".

The Carrick fellowships, awarded by the Carrick Institute for Learning and Teaching in Higher Education, are for outstanding scholars who are respected advocates for excellence in learning and teaching in higher education.

The other two – out of a total of three – senior fellowships were awarded to Prof Sally Kift and Prof Helen MacGillivray, both of the Queensland University of Technology.

Cameron said; "My senior fellowship will identify and map current and future trends in engineering practice. It looks to examine the impact of these practices on engineering education and how to develop alignment strategies through curriculum renewal and innovation. I'll be working closely with colleagues in Australia and the US, UK, and Continental Europe."

ICHEM^E IN AUSTRALIA

Relocation of Melbourne office

The IChemE's Melbourne office is now located at 488 Bourke Street in the Central Business District (between William and Queen Streets).

"These new premises will provide more modern office facilities to enable staff and the Board to support our growing membership," said Denis Dare, chair of the Board of IChemE in Australia.

Executive director Jan Althorp said: "The Institution is committed to giving our members excellent service. This new office is easier to find and will provide a more professional setup to manage our member services."

The full address of the new office is Suite 11- 2/488 Bourke St, Melbourne, Vic 3000, Australia. Phone: 03 9642 4494, fax: 03 9642 4495.

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NEWS

Environmental approval for alumina expansion

The Western Australian government has granted environmental approval to Alcoa's proposed expansion of its Wagerup alumina refinery. The proposed expansion involving a third production unit will see production increase from 2.5Mt/a to 4.7Mt/a.

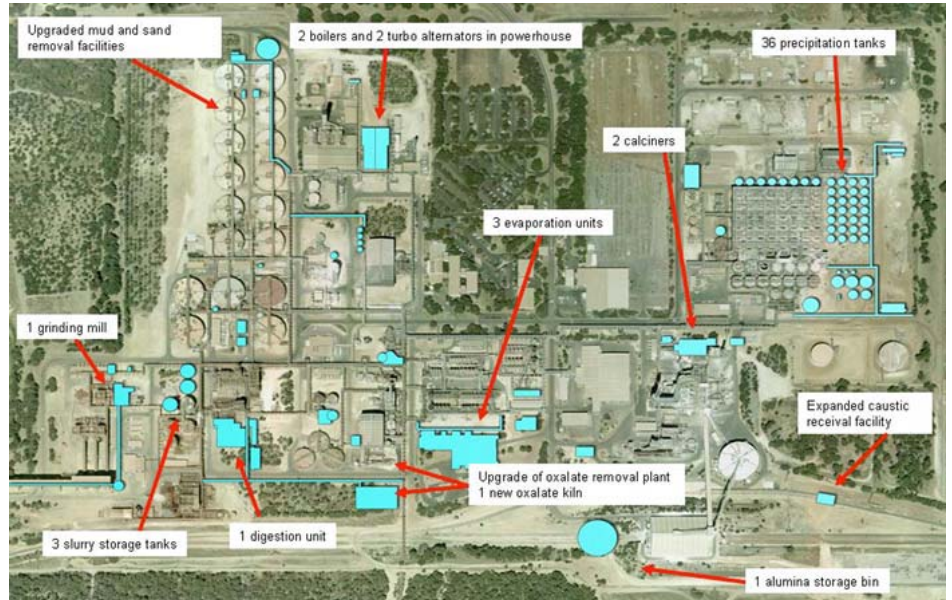
The proposed expansion is expected to create up to 260 permanent jobs at the refinery, with the construction phase generating 1500 jobs.

The environmental approval by the state government included 42 environmental conditions. The conditions would ensure no overall increase in emissions and would require Alcoa to achieve an estimated 36% reduction in total refinery odour emissions and a 12% reduction in emissions of volatile organic compounds.

Alcoa World Alumina Australia managing director Wayne Osborn said the planned expansion of will provide major social and economic benefits for Western Australia.

"Alcoa has committed to implementing the expansion with no increase in noise, dust or odour impacts," Osborn said.

Alcoa has undertaken to continue scientific data collection through construc-



- Not shown on this map:
- Various stock tanks and non-specific upgrades to other sections of the plant
 - Upgrade of water and power reticulation
 - New emergency stockpile
 - Additional ore reclaimers
 - Additional raw water storage

- Expansion of residue drying areas
- Upgrade and extension of overland conveyor system

The Wagerup plant with proposed expansion.

tion of additional meteorological and air monitoring facilities at the refinery – at a cost of approximately \$1.5 million.

Construction will not begin until Alcoa has validated its air dispersion model predictions following an intensive 12-month meteorological and air-quality monitoring program.

Osborn said Alcoa will now commence detailed engineering and design work for the project. The third unit would be built

entirely within the existing plant boundaries and would be commissioned in stages. The components of each stage are being scoped by engineering teams.

Alcoa operates the world's largest integrated bauxite mining, alumina refining and aluminium smelting system. It produces 8Mt of alumina a year – 13% of world demand – from its three refineries in Australia at Pinjarra, Kwinana and Wagerup.

Control for margarine

A hybrid FAST/TOOLS distributed supervisory control and data acquisition (SCADA) system designed by Yokogawa Australia will control a new margarine processing line at Atlantic Pacific Foods' Rutherford (NSW) plant.

Atlantic Pacific Foods (APF) is a privately-owned manufacturer of Australian vegetable oils and margarine spreads.

The system is part of a planned expansion program at APF to cater for higher predicted production levels.

Yokogawa will design and supply all PLC enclosures and provide all engineering and commissioning services.

Slurry analyser for Broken Hill mine

One of the world's most advanced on-stream slurry analysers is to be installed by Outokumpu Technology at Perilya Ltd's lead, zinc and silver mine at Broken Hill.

The Courier 6 SL elemental analyser system is part of a turnkey package of analysis, automation and sampling technology designed to optimise recoveries and concentrate quality.

Installation of the turnkey system – to be completed by early 2007 – will be managed by Outokumpu Technology's Service Centre in Australia.

Perilya currently produces about 2Mt/a of ore at the Broken Hill orebody.

The state-of-the-art Courier 6 SL system - which includes metallurgical and primary samplers, sample drying system, sample pumps, piping, platforms and electrical and mechanical installations - will replace the existing and ageing analyser system at Perilya.

A spokesperson for Perilya said the Courier system enables quick and accurate analysis. Based on the same wavelength dispersive XRF technology as that used in laboratories, it offers the highest sensitivity and short cycle time for process management, monitoring and control, he said.



CONFERENCES SEMINARS EXHIBITIONS

For a comprehensive list of upcoming engineering events, visit Engineers Media's fully searchable, continuously updated events database.

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Chemical Engineering

Course: Effective plant shutdown & turnaround planning (2 days) Brisbane 23 Nov, Sydney 30 Nov, Perth 5 Dec; **5th international conference on CFD in the process industries** (3 days) Melbourne 13 Dec. *Inquiries:* Phil Schwarz, CSIRO Minerals 03 9545 8568, fax 03 9562 8919, email cfid@minerals.csiro.au, web www.cfd.com.au/cfdconf

Energy

Conference: Australian energy user 2006 (2 days) Sydney 24 Oct. *Inquiries:* Roman Domanski, Energy Users Association of Australia 03 9898 3900, fax 03 9898 7499, email euaa@euaa.com.au, web www.euaa.com.au

Conference: Bioenergy 2006: A growth opportunity for energy & the environment (2 days) Fremantle 6 Dec. *Inquiries:* Emma Waygood, Conference Action 02 9437 9333, fax 02 9901 4586, email emma@conferenceaction.com.au, web www.bioenergyaustralia.org

Engineering Education Australia (EEA)

Courses: Contract management (2 days) Sydney 30 Oct, Adelaide 6 Nov, Brisbane 13 Nov, Perth 20 Nov, Melbourne 4 Dec; **Financial management** (2 days) Sydney 6 Nov, Melbourne 20 Nov, Perth 27 Nov, Brisbane 7 Dec, Adelaide 4 Dec; **Negotiation skills** (2 days) Hobart 24 Oct, Melbourne 8 Nov, Adelaide 21 Nov, Canberra 28 Nov; **Project management** (2 days) Sydney 1 Nov, Adelaide 8 Nov, Brisbane 15 Nov, Perth 22 Nov, Melbourne 6 Dec; **Managing self & others** (2 days) Sydney 23 Oct, Melbourne 25 Oct; **Risk management** (2 days) Adelaide 25 Oct, Perth 9 Nov, Sydney 15 Nov, Brisbane 28 Nov; **Writing winning technical documents** (2 days) Perth 1 Nov, Brisbane 22 Nov, Melbourne 27 Nov, Sydney 4 Dec; **Leadership & management** (2 days) Sydney 23 Oct, Melbourne 1 Nov, Perth 6 Nov; **Legal & professional liability** (2 days) Sydney 27 Nov, Melbourne 29 Nov; **Personal time management** (1 day) Melbourne 27 Oct, Sydney 3 Nov, Perth 24 Nov; **Maintenance management** (2 days) Perth 23 Oct, Melbourne 30 Oct, Brisbane 6 Nov, Sydney 20 Nov, Townsville 27 Nov; **Workplace productivity, efficiency & effectiveness** (2 days) Perth 26 Oct, Melbourne 16 Nov, Sydney 30 Nov; **Shutdown management** (2 days) Melbourne 1 Nov; **Transitioning from technology to management** (2 days) Sydney 13 Nov, Perth 16 Nov, Brisbane

Environment

Conference: International conference on engineering sustainability (3 days) Perth 1 Nov 2007. *Inquiries:* email enquires@keynotewa.com

Mining

Conference: Wining & mining: Engineering the future (3 days) Hunter Valley 23 Mar, 2007. *Inquiries:* Engineers Australia Newcastle Division 02 4926 4440, fax 02 4929 7121, email newcastle@engineersaustralia.org.au, web www.newcastle.engineersaustralia.org.au

Miscellaneous

Conference: Young Engineers Australia national summit 2006 (1 day) Canberra 22 Nov. *Inquiries:* Andrew Mackay, email amackay@engineersaustralia.org.au, web www.vervecreative.com.au/yes
Conference: 24th conference of ASEAN federation of engineering organisations (4 days) Kuala Lumpur, Malaysia 29 Nov. *Inquiries:* Institution of Engineers, Malaysia +603 7968

20 Nov, Melbourne 23 Nov. *Inquiries:* Frank Martinelli, general manager, Engineering Education Australia 03 9326 9777, fax 03 9326 9888, email frankm@eeaustr.com.au, web www.eeaustr.com.au

EEA-partner courses

Courses: Practical boiler plant operation & management (2 days) Auckland, New Zealand 13 Nov; **Motor protection, control & maintenance technologies** (2 days) Brisbane 20 Nov, Sydney 23 Nov; **Practical project management** (2 days) Perth 4 Dec, Melbourne 7 Dec, Sydney 11 Dec, Brisbane 14 Dec; **Troubleshooting & problem solving of Modbus protocols** (2 days) Sydney 6 Nov, Perth 9 Nov; **Instrumentation for automation & process control** (2 days) Perth 13 Nov, Melbourne 16 Nov, Sydney 20 Nov, Brisbane 23 Nov. *Inquiries:* IDC Technologies 02 9957 2706, fax 02 9955 4468, email register@idc-online.com, web www.idc-online.com
Course: Requirements analysis & specification writing (5 days) Melbourne 20 Nov, Bangalore 11 Dec; **Systems engineering** (5 days) Seoul 6 Nov, Las Vegas 3 Nov, Amsterdam 27 Nov, Bristol 4 Dec, Hong Kong 18 Dec. *Inquiries:* Project Performance International 03 9876 7345, fax 03 9876 2664, email contact@ppi-int.com, web www.ppi-int.com

4001, fax +603 7957 7678, email sec@iem.org.my, web www.iem.org.my
Conference: Austrib 06: international tribology conference – putting tribology to work (4 days) Brisbane 3 Dec. *Inquiries:* 07 3844 0909, fax 07 3844 1138, email austrib2006@icms.com.au, web www.icms.com.au/austrib2006

Safety

Seminar: Intrinsic safety for explosive atmospheres (2 days) Sydney 5 Dec. *Inquiries:* Debbie Wouters, TestSafe Australia 02 4724 4905, email debbie.wouters@workcover.nsw.gov.au, web www.testsafe.com.au

Systems Engineering

Courses: Requirements engineering (2 days) Canberra 26 Oct; **System dynamics modelling practicum** (3 days) Canberra 1 Nov. *Inquiries:* UNSW@ADFA Business Services 02 6268 8421, fax 02 6268 8135, email business.office@adfa.edu.au, web www.unsw.adfa.edu.au/units/busservices/short_courses/index.html
Conference: Process control fundamentals for maximising mineral processing plant performance (3 days) Townsville 1 Nov. *Inquiries:* IIR 02 9923 5090, fax 02 9959 4684, email info@iir.com.au, web www.iir.com.au

Water

Symposium: 30th hydrology & water resources symposium (4 days) Launceston 4 Dec. *Inquiries:* email ben@cdesign.com.au, web www.cdesign.com.au/hydrology2006

OVERSEAS COURSES

Energy

Conference: 3rd BSME – ASME international conference on thermal engineering (3 days) Dhaka, Bangladesh 20 Dec. *Inquiries:* Prof M Imtiaz Hossain, Bangladesh University of Engg & Tech, email imtiazh@me.buet.ac.bd, web www.iutoic-dhaka.edu/bsme_asme_ict2006/index.html

Minerals Processing

Conferences: Reagents 06 (2 days) Cape Town, South Africa 16 Nov; **Material, minerals, & metal ecology 06** (2 days) Cape Town, South Africa 14 Nov. *Inquiries:* Barry Wills, Minerals Engineering International +44 07768 234121, fax +44 01326 318352, email bwills@min-eng.com, web www.min-eng.com

Miscellaneous

Courses: Principles of extruder die design (2 days) Bangkok, Thailand 27 Nov; **Food & feed extrusion** (3 days) Bangkok, Thailand 22 Nov. *Inquiries:* Gordon Young, Foodstream 07 3018 2800, fax 07 3102 6252, email gyoung@foodstream.com.au, web www.foodstream.com.au



NEW PRODUCTS

Continuous particle monitoring

The Pola 3000, launched by Particle & Surface Sciences Pty Ltd, is an online particle monitoring system that has been specially designed for use in harsh environments. It uses an image acquisition technology to analyse free-flowing particles down to 40µm.

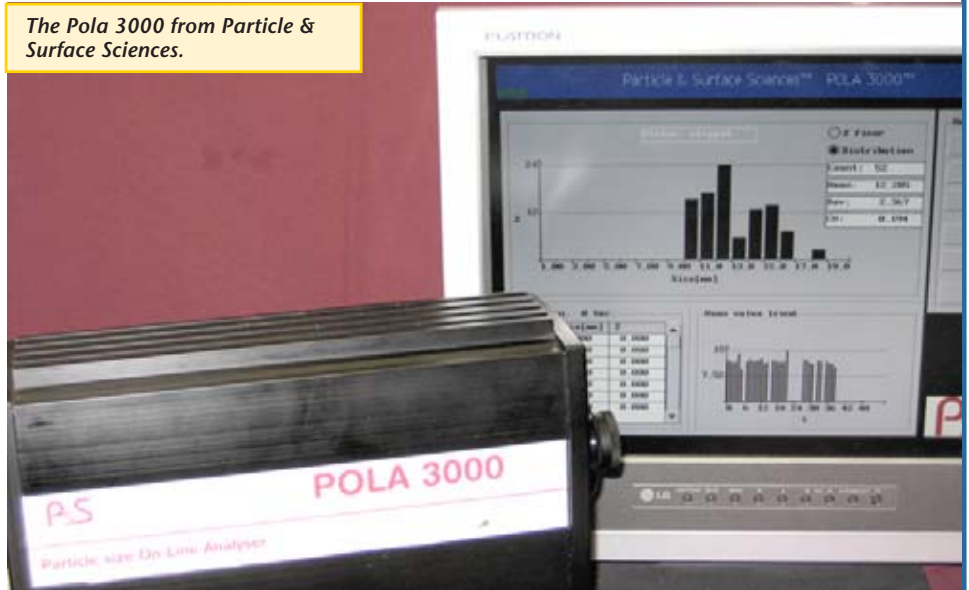
It is designed for use wherever there is a need to size particles in a continuous stream and it frequently replaces traditional sieve type analysis.

The instrument has a built-in 4-20mA loop for controlling external devices such as feeders and it can be directly interfaced into PLC systems via an RS232/RS485/RS422 interface.

The microprocessor is enclosed inside the analyser and it does not require hard disc drives or similar computing devices, eliminating the problem of hard disc failure in dusty environments.

The instrument is powered by 24V

The Pola 3000 from Particle & Surface Sciences.



supply and is designed to work continuously.

Two new analysers – the Pola 2000 and

4000 – are in the final stage of development.

• *More information? Qikreply 16*

Status recorders for power and process plants

AMS Instrumentation & Calibration Pty Ltd is marketing the Ronan X500F Sequence of Events Recorder, the Ronan X100/X100N Fault Recorder, and the Ronan Continuous Level System.

The X500F is a fault finding data acquisition system for the power generation and distribution, and process industries. The company said the system's high-speed, high-resolution digital multiplexers utilise network interface for open and fast transmission of plant status change to the operator on local HMI (human machine interface) or a remote host and visual annunciator.

The multiplexers simultaneously store the historical event information internally, as well as a duplicate storage in the local or remote Ronan HMI software X1000 for equipment failure and shutdown analysis.

The company said the X1000 software's ability to group plant or equipment related inputs allows immediate access to a

specific event information or routing to different displays/peripherals.

The Ronan X100 and X100N micro-controller-based fault recorders/annunciators are designed to monitor individual dry or live contacts, or logic levels.

Some of their key features are numeric display to show alarm events in consecutive order of occurrence, or window type annunciation for first-out indication with a resolution better than 1 millisecond.

The X100N provides additional features like serial communication to a host, such as a plant computer, or PLC system, real time tagging, nonvolatile event storage, and real time distribution between units.

The Ronan Continuous Level System enables measurements on processes with conditions of extreme temperatures, high pressures, and in corrosive, abrasive or toxic environments.

It includes a low energy gamma ray

emitting source, detector, cable and microprocessor.

• *More information? Qikreply 17*

For more information on any of these products, send an email to tmarsden@engineersmedia.com.au with the subject headline "CEA Qikreply". Your contact details and the Qikreply number of the product should be included in the body of the email.