

From the Research Director

In Altima Volume 10, I reported on the Centre's successful bid for an extension, that would see ARC funding available for an additional 3.5 years. Discussions within the Centre since that time have seen consensus emerge around a plan to structure the next phase of Centre research activities to conclude at the end of 2013, with not less than the current annual level of funding available to institutions throughout that period. Plans are therefore well underway to form a cohesive and focused Research Portfolio for the 2011 to 2013 Phase 3 of Centre funding. It is to be emphasized that this is a critical phase in the Centre's life, for it will be important to position the Centre strategically for a possible bid for renewal and/or a sustainable existence beyond the current funding cycle. The Centre will have an additional ~\$1.4m of funding available during this period for strategic initiatives that focus on this goal.

In planning for Phase 3, formal Project Reviews have been conducted for all Phase 2 projects, with Project Teams recently being advised of the preliminary findings of the Review Panel. As a member of that Panel, I am pleased to report that the Panel was invariably impressed with the quality of the research being conducted across the Centre and it is a pleasure to congratulate all who participated. The quality of presentations, the achievements and the timely compliance with the requests of the Centre were outstanding. That said and, given the priority to use these reviews for Phase 3 planning, the Review Panel was determined to make the process a critical self-assessment and identify issues that might impact on the form, content and quality of the Research Portfolio in Phase 3. It is these issues that figure prominently in the preliminary reports and it is my hope that Project Teams will consider the reports of the Review panel thoughtfully and constructively as we move through the next planning cycle.

During July, senior staff will participate in a planning workshop to set the framework for Phase 3 and in the weeks immediately following it is planned to conduct a series of Centre-facilitated meetings of Project Teams to consider Phase 3 projects in greater detail. I warmly encourage the broadest possible participation; the Centre needs your commitment at this crucial time.

In other news, it is great to see the dates confirmed (30 Nov-1 Dec 2010) for the Centre's Annual Workshop, and we are grateful to Professor Simon Ringer and his team at the University of Sydney for agreeing to host this year's event. This Workshop has become one of the highlights of the Centre's annual program and again I encourage the strongest possible participation.

In March, we farewelled Marianne Johnston from the Centre administration team, and welcomed back Astrid Nordmann from maternity leave. Marianne took over the reins of Centre operations in what is always a difficult role and performed with the utmost professionalism. We are grateful for her conscientious efforts and great attention to detail.

I note also that this issue of the Newsletter is packed with news of special achievements by Centre staff and students, and it is a pleasure to acknowledge these deeds and congratulate all involved. A special congratulations to Professor Matthew Barnett on his appointment to a continuing Chair at Deakin University.

On a personal note, and as many will already be aware, I have decided to stand down as Research Director of the Centre at the end of 2010 and, indeed, retire from a full-time academic role. There are always many reasons for such decisions and they are the type of life-changing decisions that are difficult to take. However, it is important for me to make clear that this decision reflects no lack of faith in the Centre, its mission and its future. My primary goal in stepping aside from the role at this time is to permit a timely transition in the critical position of Research Director when the Centre still has a full three years of funding available and an opportunity to position itself for a sustainable future. Monash University is about to conduct an international search for a replacement and I am committed to achieving the most effective transition possible over coming months. Although I will not have a formal role beyond 2010, I am hoping to continue to engage with the Centre, work in its best interests and help promote a sustainable future.

IN THIS ISSUE

- ▲ Awards, grants and congratulations
- ▲ VSSEC-NASA Australian Space Prize
- ▲ Elsevier Subject Editor
- ▲ FEI-EM calendar
- ▲ Staff & student profiles

Annual CoE workshop

This year's annual Centre Workshop will be held at The University of Sydney, on 30 November and 1 December 2010.

Please make a note in your diaries – further details will be circulated closer to the date.

Upcoming conferences

INALCO 2010

23 - 25 June, 2010
Eindhoven, Netherlands
www.inalco2010.com

PRICM7

1 - 5 August, 2010
Cairns, Australia
www.materialsaustralia.com.au/pricm7

ECF18: 18th European Conference on Fracture

30 August - 3 September, 2010
Dresden, Germany
www.ecf18.de

ICAA12

5 - 9 September 2010
Yokohama, Japan
www.icaa12.org

Titanium 2010

2 - 6 October, 2010
Orlando, Florida, USA
www.titanium.org

MS&T '10

17-21 October, 2010
Houston, Texas, USA
<http://matscitech.org>

4th year award at Monash

Cong Qiu was the recipient of the Annual CoE prize for Monash's best 4th year project in the light metals area, presented at the Monash University Faculty of Engineering Awards Presentation Night on Wednesday 26th May.



His project was supervised by Dr Christopher Hutchinson, and topic was diffusion couples in the Al-Cu-Mg system.

Best presentation

The **Lockheed Martin research team**, based at The University of Queensland and Monash University, were awarded best presentation at the recent 4th Australian JSF Advanced Technology and Innovation Conference held in May, for their work on the E-Beam welding of Al-Sc alloys.



Highly cited author



Professor Yuri Estrin of Monash University has made the top ISI "Materials Science" cited authors.

This is a great honour with only 7 Australians in total in the category. ISI itself says "*ISI Highly Cited.com* highlights the top 250 pre-eminent individual researchers in each of 21 subject categories who have

demonstrated great influence in their field as measured by citations to their work - the intellectual debt acknowledged by their colleagues."

Congratulations

Dr Nick Birbilis of Monash University has been named to the Editorial Board of *Corrosion*. The appointment was made recently by the NACE International Publications Administrative Committee.



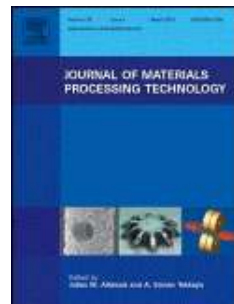
With over 60 years of published research, *Corrosion* is a technical research journal devoted to furthering the knowledge of corrosion science and engineering.

Published by NACE International, the technical articles selected for publication in *Corrosion* provide a permanent record of the latest progress in the science and technology of corrosion control and are published after an extensive peer-review cycle by the Editorial Board.

This is a great testament for the hard work of all the corrosion personnel in the Centre, as this is the first time an Australian has been named to the board.

Elsevier Subject Editor

Associate Professor Carlos Cáceres' contract with Elsevier as Subject Editor for the *Journal of Materials Processing Technology (JMPT)* has been extended for a further two years. His responsibilities will be expanded, to include welding, in addition to casting and heat treatment.



The Journal's impact factor is 1.14, one of the highest in the field of metals technology. This is a significant achievement for Materials at UQ and the CoE. *JMPT's* web sites:

http://www.elsevier.com/wps/find/journaleditorialboard.cws_home/505656/editorialboard

http://www.elsevier.com/wps/find/journaldescription.cws_home/505656/description#description

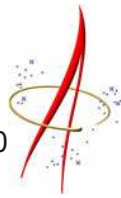
Successful LIEF Grant at Deakin

A successful \$1M Deakin University-led ARC LIEF Grant for a Field Emission Gun Transmission Electron Microscope will assist research in nanomaterials, metal alloys and biological sciences. This application, led by Professor Ian Chen, was the largest LIEF Grant Deakin has ever won.

The team included CoE researchers A/Prof Matthew R Barnett, Prof Peter D Hodgson, Dr Pavel Cizek and Dr Nicole Stanford; as well as Professor Ian Chen, Prof Xungai Wang, Dr Takuya Tsuzuki, Dr Cui'e Wen, Dr Alexey M Glushenkov, A/Prof Lingxue Kong, Dr Dominic J Phelan, Dr Ken Walder, Prof Neil W Barnett, Prof Qipeng Guo, Dr Germanas Peleckis, Prof David M Cahill, Prof Charles C Sorrell, Dr Yuebin Zhang, Prof Vicki Chen, Dr Simon E Moulton, Prof John H Beynon, Prof Dr Xiaolin Wang, Dr Robert G O'Donnell.



VSSEC-NASA Australian Space Prize



Mr Aaron Podmore, an Honours student in 200 at The University of NSW, has just won the Engineering Category for the VSSEC-NASA Australian Space Prize where four students were eligible to apply for the overall prize to work at NASA.

Aaron won the Engineering category for his final year thesis on *'The Design and Production of New Economically Viable Lightweight Bulk Metallic Glasses'* and was supervised by Kevin Laws and Michael Ferry.

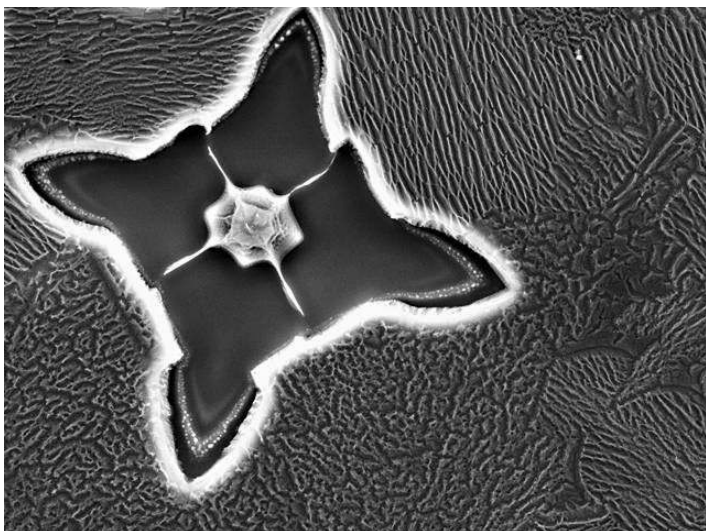
The VSSEC-NASA Australian Space Prize offers an Australian university student the opportunity to attend one of three NASA Academies or participate in a NASA affiliated summer program.

These programs are normally only available to US citizens. Through the awarding of this prize, an Australian university student will work directly with NASA scientists and engineers. These programs provide students with direct contact with advanced science and engineering R&D and an awareness of the complex managerial, political, financial, social, and human issues faced by the current and future aerospace programs.

FEI-EM calendar winning entry

An image taken as part of the Lockheed Martin project *"Electron beam welding of aluminium"* has won a spot in the 2010 FEM EM Calendar published by Australian and New Zealand Microscopy and Microanalysis.

The award-winning image was acquired using a JEOL JSM 7001F FEGSEM at the MCEM Monash University. Sample preparation: electropolished (using perchloric acid+methanol +2-butoxyethyl) and electroetched with 2.6% HBF₄. It is the microstructure of Al-2wt%Sc showing the primary Al₃Sc (flower-like shape) and the matrix of alpha-aluminium and Al₃Sc acquired. Experimental conditions: Magnification 2000; WD 10 mm, 15kV; backscattered electron detector. The project involves Associate Professor Ma Qian from UQ, Professor Barry Muddle and Dr Dacian Tomus from Monash and Dr Craig Brice from Lockheed Martin.



ALTIMA

Congratulations, Professor Barnett

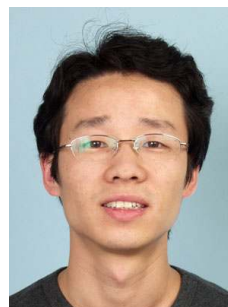
Matthew Barnett, one of the Centre's key research leaders was promoted to a personal Chair at Deakin University in recognition of his leadership in metallurgy and light metals in particular. Matthew has played a pivotal role in Deakin's involvement not only in the CoE but also earlier in CAST where he and his colleagues developed a new Mg extrusion alloy that has since been patented and is undergoing industrial trials.



Matt began his professional journey studying at RMIT while working as a trainee at the then BHP - now Bluescope - Western Port operations. He then took a leave of absence to undertake his PhD with Professor John Jonas at McGill University, Canada on warm rolling of steels. After some time in Belgium Matt returned to continue his steel research at the BHP research laboratories in Pt Kembla. When Peter Hodgson moved from BHP to Deakin University he tried to lure Matt into academia - and finally Matt did join Deakin as a post doctoral fellow. Matt's research then broadened from steel to include Mg and other alloys and he was awarded a QEII Fellowship from the ARC to further develop this area of research activity.

Professor Barnett's present role in the CoE is based around the development of wrought Mg alloys and more recently the processing of Ti powder and metals.

Award for Yuman



Mr Yuman Zhu, a PhD student under the supervision of Professor Jian-Feng Nie and Dr Allan Morton at Monash University, has recently received a highly-prestigious Chinese Government Award for Outstanding Self-Financed Students Abroad.

The Chinese Government Award for Outstanding Self-Financed Students Abroad was established to encourage research excellence and to recognize the achievement among Chinese students abroad. It is approved by the Ministry of Education in China and administered by the Chinese Scholarship Council.

Awardees are selected based on their academic merit and research achievements and after three rounds of judgments made by invited eminent experts from their fields in China as well as from their host countries. This award is granted across all fields of studies in the world and was presented to 10 Chinese students in Victoria and Tasmania this year. The Award consists of US\$5000 and a diploma to be presented at the Chinese Embassy. Yuman Zhu published 2 papers in *Acta Materialia*, 2 papers in *Scripta Materialia*, and 1 paper in *Philosophical Magazine Letters* in the past 3 years. He is currently working on 2 more manuscripts for publication in high-impact journals.

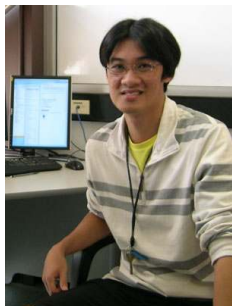
Student & Staff profiles



Dr Nicole Stanford is based at Deakin University and is project manager of A3 - Mg Wrought Alloy Design. Nicole has two main areas of research interest: magnesium alloy development; and strip casting technology.

She has a particular enthusiasm for developing unique thermo-mechanical processes that optimise alloy performance.

Nicole lives with her partner and step-son, and in her spare time she plays touch football and her life ambition is to learn to whistle.



Mr Ray Low is a postgraduate researcher based at The University of Queensland and works within in the research area of Project A5 - Ti Powder Processing.

Ray is currently conducting research in the field of titanium powder metallurgy. He is particularly interested in the sintering of titanium alloys for containerless HIPping.

The goal of his PhD project is to attain minimal open porosity via preferentially surface densification during sintering. It is proposed that this technology would enable cost-effective net-shape manufacturing of full-density titanium components.

Secondly, Ray is researching the trace addition of secondary phase materials to titanium powder for the purpose of scavenging chlorine and sulphur impurities during sintering. Chlorine, in particular, has been a long standing problem in titanium PM causing property degradation in sintered, sinter+HIPped and sinter+forged components. Overcoming this problem may lead industry to greater utilisation of low-cost titanium sponge fines, typically rich in residual chlorides.

However, Ray says that the most important part of his week happens outside of the lab and office. Ray takes charge of a local Boys' Brigade company, a church ministry aimed at discipling boys into followers of Jesus. Ray's extra-curricular interests range from cricket and camping to bible study and computer gaming.

Farewell for Naga

Dr A.V. Nagasekhar has been appointed senior researcher at Carpenter Technology (www.carttech.com), a US company producing specialty cast-wrought and powder metallurgy alloys including stainless steels, high temperature (nickel, iron and cobalt base) alloys, high-strength steels, tool steels, magnetic and controlled-expansion alloys, as well as titanium alloys.

Naga spent 3.5 years as a CoE postdoctoral fellow with the Project B1.3 - 3D network structures at The University of Queensland. In this time he honed his electronmicroscopy techniques, EBSD and dual beam FIB, which were instrumental in him getting this most challenging job with Carpenter.

Naga left the CoE at the end of April to join Carpenter's Technical Centre in Reading, Pennsylvania, in the United States. We wish him every success.

Advisory Board

The Centre Advisory Board's membership has recently had some changes. The current complement of representatives is:

- Dr Colin Adam (*Independent Chair*)
- Professor Lee Astheimer (*Deakin University*)
- Professor Gordon Dunlop (*Independent*)
- Emeritus Professor David Embury (*McMaster University*)
- Mr Ian Harris (*University of Queensland*)
- Professor Rod Hill (*Monash University*)
- Mr Richard Marshall (*GM Holden*)
- Mr Jonathan Moodie (*Independent*)
- Professor Barry Muddle (*Research Director*)
- Dr Astrid Nordmann (*Chief Operating Officer, ex-officio*)
- Dr Raj Rajakumar (*CSIRO Light Metals Flagship*)
- Professor Kim Rasmussen (*University of Sydney*)
- Professor Peter Robinson (*CAST CRC*)
- Professor Peter Scales (*University of Melbourne*)
- Professor David Young (*University of NSW*)

Our partner universities



Australian Government

Australian Research Council

Join our mailing list

If you would like to be placed on the ALTIMA mailing list, or are interested in submitting articles for publication in the newsletter, please send an email to:

altima@eng.monash.edu.au

Or visit the "Publications" section of the Centre's website at www.arclightmetals.org.au and fill in the subscription form.

Contact the Centre

Please direct enquiries to:

Nancy Place
Executive Officer

Monash University
Wellington Road, Clayton, VIC, 3800

Tel: +613 9905 1833
Fax: + 613 9905 4940

Email: nancy.place@eng.monash.edu.au
Website: www.arclightmetals.org.au