2013
Research Report

The School of Aerospace, Mechanical and Mechatronic Engineering

The University of Sydney

Contents

We are pleased to publish this report which reflects the research strengths and achievements in the School of Aerospace, Mechanical and Mechatronic Engineering (AMME) for 2013. The School has a number of world class research groups and has continued to maintain its position as the dominant research school in the faculty, and one of the leading engineering research schools in the country.

During the year $15.5 million of new research funding was obtained, 362 research articles and books were published, 132 research students were under supervision and a record number of 42 research students completed. With 31 permanent academic staff members our performance per capita places us on a par with the top engineering schools in the world.

I would like to thank all the staff whose hard work and dedication has produced this outstanding research profile, and in particular to congratulate Qing Li, Xiaozhou Liao & Hala Zreiqat on their promotion to Professor; and Peter Gibbens, Michael Kirkpatrick & KC Wong on their promotion to Associate Professor.

Professor Steve Armfield
Head of School

Contents

Back to Contents

Academic Staff

Prof Steven Armfield
Prof Masud Behnia
Prof Gregory Chamitoff
Prof Qing Li
Prof Xiaozhou Liao
Prof Yiu-Wing Mai
Prof Assaad R. Masri
Prof Eduardo Nebot
Prof Simon Ringer
Prof Andrew Ruys
Prof Salah Sukkarieh
Prof Roger Tanner

Prof Liyong Tong
Prof Lin Ye
Prof Hala Zreiqat
A/Prof Julie Cairney
A/Prof Colin Dunstan
A/Prof Peter Gibbens
A/Prof Michael Kirkpatrick
A/Prof David Rye
A/Prof Stefan Williams
A/Prof Kee Choon Wong
Dr Douglass Auld
Dr Philip Boughton

Dr Graham Brooker
Dr Li Chang
Dr Matthew Cleary
Dr Matthew Dunn
Dr Rodney Fiford
Dr Ahmad Jabbarzadeh
Dr Ian Manchester
Dr Ben Thornber
Dr Xiaofeng Wu
Dr Dries Verstraete
Dr Gareth Vio
Mr Paul Briozzo

Research Fellows, Associates & Assistants

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Dr Mitchell Bryson
Dr Anna Ceguerra
Dr Bin Chen
Dr Yong Juan Chen
Dr Seunggyun Cheong
Dr Anna Chlingaryan
Dr Carl Xiangyuan Cui
Dr Shao Cong Dai
Dr Shiqiang Deng
Dr Bertrand Douillard
Dr Xusheng Du
Dr Peter Felfer
Dr Robert Fitch
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Dr Jiangfeng Gong
Dr Calvin Hung
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Dr Agisilaos Kourmatzis
Dr Nicholas Lawrance

Dr Quan Bing (Eric) Li
Dr Tong Li
Dr Wei Li
Dr Peter Liddicoat
Dr Hong-Yuan Liu
Dr ZuFu Lu
Dr Quantian Luo
Dr Arman Melkumyan
Dr Richard Murphy
Dr Srinarayana Nagarathinam
Dr Juan Nieto
Dr Navid Nourani-Vatani
Dr Hua (Hugh) Ouyang
Dr Thierry Peynot
Dr Oscar Pizarro
Dr Vinayaka Nakul Prasad
Dr Fuzhong Qi
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Dr Gang Sha
Dr Sten Starner
Dr Leigh Stephenson
Dr Hanako Suenaga
Dr James Underwood
Dr Surjani Uthayakumaran
Dr Shrihari Vasudevan
Dr Guocheng Wang

Dr Yanbo Wang
Dr James Ward
Dr Nicholas Williamson
Dr Stewart Worrall
Dr Junhai Xia
Dr Chuncheng Yang
Dr Hung-Wei Yen
Dr Wai Kong Yeoh
Dr Rui Yu
Dr Steven Scheding
Mr Mojtaba Abtahi
Mr Gabriel Agamennoni
Mr Rupam Bandopadhyay
Mr Prasad Cheema
Mr Yipeng Ge
Mr Andrew Hill
Ms Barbara James
Mr Sven Schneider
Mr Dahua Shou
Ms Katie Silversides
Mr Nathan Wallace
Mr Hongjian Wang
Mr Henry Warhurst
Mr Derek Wong
Mr Jason Wu
Mr Francisco Zubizarreta

Administrative Staff

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Ms Radhika Challapalli
Mr Thomson Chow
Ms Susan Gonzales
Ms Padmini Joshi
Ms Wendy Liang

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Ms Deirdre Molloy
Ms Ruth Olip
Ms Tessie Santos

Ms Bronwyn Sexton
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Dr Jennifer Whiting
Ms Dannielle Williams

Back to Contents

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Mr Ritesh Lal
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Mr Malcolm Sinclair
Mr Duncan Stenger
Mr Benjamin Stewart
Mr Thomas Teo
Mr Kevin Tjoe
Mr John Todhunter
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Mr Limei Yang
Mr Suqin Zhu
Mr Alexey Zolotarev

Honorary Associates

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Dr Ronald Houghton

Affiliates

Emeritus Prof Robert Bilger
Emeritus Prof Graeme Bird
Emeritus Prof Grant Steven
Visiting Prof John Dennis Bobyn
Visiting Prof Jang-Kyo Kim
Visiting Prof Anthony Kinloch
Visiting Prof Toshio Tanimoto
Visiting Prof Gordon Williams
Honorary Prof Arthur Brandwood
Honorary Prof Paul Carter
Honorary Prof Xinquan Jiang
Honorary Prof John Kent
Adjunct A/Prof Mari Velonaki
Adjunct A/Prof Rong Zheng
Honorary A/Prof Mehrdad Behnia
Honorary Senior Lecturer Karkenahalli Srinivas
Honorary Senior Lecturer Giang Tran
Adjunct Lecturer Peter Bates

Visiting Scholars

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Prof Alan Purvis
Prof Shijie Zheng
A/Prof Yongzhi Cao
A/Prof Kee Man Lee
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Dr Jingjing Jia
Dr Marc Schwarzbach
Dr Feifei Wang
Dr HuaiYuan Wang
Dr Xiaobing Zhao

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Mr Pieter Dehairs
Mr Liu Fang
Mr Kunkun Fu
Ms Ewa Kristiansen
Mr Anders Lange
Ms Hongshuai Lei
Mr Bing Li
Mr Silu Liu
Ms Xuan Lu
Mr Jeffrey Meesters
Ms Zhiqiang Wu
Mr Nan Zheng

Back to Contents

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Mr Nasir Ahsan
Mr Mahmoud Alfouneh
Mr Ahmed Al-harbi
Mr Matthew James Lindsay Anderson
Mr Vicente James Araullo-peters
Mr James Leonard Armstrong
Mr Robert Aughterson
Mr Layth Ali Awin
Mr Xueliang Bai
Mr Adrian Keith Ball
Mr Suchet Bargoti
Mr Ronald Ian Charles Bartsch
Mr Bal Krishna Bashyal
Mr Alexander Stephen Baume
Mr Asher Bender
Mr Michael Stuart Bewley
Mr Daniel Luciano Bongiorno
Mr Andrew John Breen
Mr Christopher Joseph Brunner
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Mr Che-cheng Bryant Chang
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Ms Yujie Chen
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Miss Jen Jen Chung
Mr Bryan Russell Clarke
Mr Donald Gilbert Dansereau
Mr Benjamin Rhys Davies
Mr Mark De Deuge
Mr Manuel De Sousa
Ms Vivien Suphandani Djanali
Mr Steven Dumble
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Mr Md Musharraf Hossain
Mr Christopher John Innes
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Mr Abouzar Moshfegh
Ms Deepika Nandakumar
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Mr James William Pierrepont
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Mr Dushyant Rao
Mr William Albert Hudson Reid
Mr Victor Adolfo Romero Cano
Mr Seyed Iman Roohaniesfahani
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Mr Shogo Sayama
Mr Sven Schneider
Mr Konstantin Martin Seiler
Mr Motlatsi Seotsanyana
Mr Mao Shan
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Mr Tatsumi Uezato
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Mr Srinivas Vasista
Mr Rishi Verma
Mr John Francis Stephen Vial
Mr Hongjian Wang
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Mr David Garner Williams
Mr Daniel Briggs Wilson
Mr Kaichung Wong
Mr Paul Chun Hymn Wong
Mr Jun Jie Wu
Mr Size Xiao
Mr Zhe Xu
Mr Jun Yan
Mr Chanyeol Yoo
Mr Erik George Zapletal
Mr Vanja Zecevic
Mr James Yinye Zhang
Ms Jianing Zhang
Mr Zhongpu Zhang
Mr Keke Zheng

ARC Discovery Projects

DP140104203
Project Title: Active Segmentation for Cooperative Mobile Robots in Outdoor Environments

Sukkarieh, Prof Salah; Fitch, Dr Robert C
$320,000 2014 – 2016

Administering Organisation: The University of Sydney
Project Summary: The objective of this project is to develop a principled understanding of how to improve the segmentation of three-dimensional range data in a cooperative manner by judiciously choosing future sensor viewpoints of a team of mobile robots. The viewpoint of the robot affects both the density of three-dimensional data points and the areas that are unobservable due to occlusions. Project outcomes will open up a whole new approach to the process of autonomously gathering information about objects in outdoor environments, will synergise with existing classification and motion planning methods, and will support Australia's continued role as a leader in field robotics research.

DP140104408
Project Title: Design of nastic cellular structures with osmotic actuation

Tong, Prof Liyong
$450,000 2014 - 2016

Administering Organisation: The University of Sydney
Project Summary: Shape changing structures play an imperative role in aerospace, automobile, energy and other industries. This project aims to develop novel concepts extracted from nastic motion in plants and relevant computational algorithms for the design of nastic cellular structures with osmotic actuation. The project is of significance as it offers a potential solution to the shape morphing challenge in aircraft and automobile from biomimetics viewpoint-nastic actuation. The expected outcomes will be: a new numerical method for designing nastic cellular structures; and, validated algorithms with a novel topological geometry representation and multi objectives and constraints for applications in morphing structures with multiple target shapes.

ARC Linkage Infrastructure, Equipment and Facilities (LIEF)

LE140100082

Prusty, A/Prof Gangadhara B; Compston, A/Prof Paul; Tong, Prof Liyong; Kwok, Prof Kenny C; Fox, A/Prof Bronwyn L; Tang, Dr Youhong; Ojeda Rabanal, Dr Roberto E; Bhattacharyya, Prof Debes; St John, Dr Nigel A; Beehag, Dr Andrew; Sterbic, Mr Mark; Uy, Prof Brian; Sahajwalla, Prof Veena; Pearce, Dr Garth; Qin, Prof Qing-Hua; Morozov, Prof Evgeny V; Ye, Prof Lin; Rasmussen, Prof Kim J; Mashiri, Dr Fidelis R; Das, Dr Rajarshi; Wildy, Dr Stuart J

$500,000 2014

Partner/Collaborating Eligible Organisation(s): ACS-A Pty Ltd, CST Composites, the Australian National University, the University of Sydney, University of Western Sydney, the Flinders University of South Australia, Deakin University, University of Tasmania, the University of Auckland, Defence Science and Technology Organisation

Administering Organisation: The University of New South Wales
Project Summary: A facility for the automated fabrication of high performance be spoke components: The project will create a new coordinated facility for composites research including modern automated infrastructure. The facility will bring Australia in line with leading international research centres and promote fundamental and applied research into a range of fields including underwater renewable energy systems, space vehicle structures, multifunctional and smart materials and infrastructure capacity extension. The facility will position Australian research for significant international collaboration through endorsement of next-generation manufacturing technology and enable leading outcomes for Australasian science and engineering in aerospace, marine, civil, automotive, renewable energy and primary resources.

Sydney Bridging Support Grants

Professor Xiaozhou Liao $30,000

Associate Professor Qing Li $30,000

Sydney Postdoctoral Fellowships

Dr Xianghai An
$362,092 2014 - 2016

Project Title: Quantitatively unravelling the physical origins of twinning-induced plasticity: insight from in-situ nanoscale deformation

Back to Contents

Appointments & Promotions

Associate Professors Xiaozhou Liao, Qing Li and Hala Zreiqat are promoted to Professor

Drs Peter Gibbens, Michael Kirkpatrick and KC Wong are promoted to Associate Professor

Dr Gregory Chamitoff (NASA Astronaut) is appointed Lawrence Hargrave Professor of Aeronautical Engineering

Dr Ben Thornber is appointed Senior Lecturer in Aeronautical Engineering (Aerodynamics)

Dr Matthew Cleary is promoted to Senior Lecturer

Dr Robert Fitch is promoted to Level C Research Associate

Dr James Underwood is promoted to Level C Research Associate

Dr Zufu Lu is promoted to Level B Research Associate

Awards & Honours

Prof Yiu-Wing Mai is awarded Doctor of Science honoris causa from Hong Kong University.

Adrian Ball and Ken Ho receive the Dean's Award for Excellence in Tutoring 2013 and Jiro Funatomo is highly commended for Excellence in Tutoring 2013 for the School of AMME.

Leticia Lui (Brazilian Scholarship Student in Mechanical Engineering) wins the NSW International Student of the Year Award for 2013 for her work in cross-cultural communication amongst international students studying on campus at the University's Centre for English Teaching (CET).

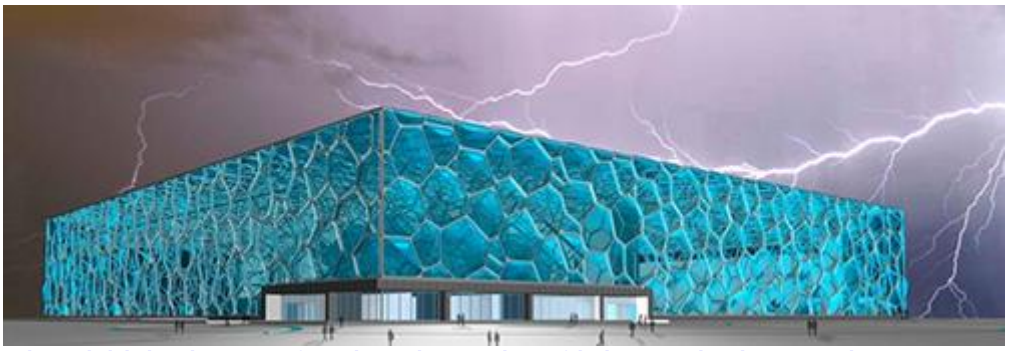
Books Published

Professors Yiu-Wing Mai and Xiaohong Chen publish their book, **Fracture mechanics of electromagnetic materials - Nonlinear field theory and applications**, Imperial College Press, London, 305 pp, 2013. [ISBN: 978-1-84816-663-9]

Conferences

Australasian Conference for Computational Mechanics

Organised by Professor Grant Steven & Professor Qing Li, 3rd – 4th October, 2013



Strand7 used global analyses to perform elasto-plastic analysis of the beams within the Beijing Olympics Water Cube. [Image supplied by Strand7]

As many as 200 industry and academics specialists attending the two-day conference addressed a discipline dealing with issues ranging from subsea pipelines to intracranial aneurysms. Conference chair, University of Sydney lecturer and Strand7 Pty Ltd director, Professor Grant Steven, said computational mechanics (CM) has had a profound impact on science and technology and now plays a pivotal role in the analysis, development and design of new manufacturing techniques, communications, transportation and biomedical technologies. "Nowadays no product is taken to market without major CM simulation or a 'day in its life'. Cars, aircraft, toothbrushes, even designer label shoes are tested for their strength and durability. All this is done by simulating the physics of a product, the laws of nature so to speak, via computer simulations." stated Professor Steven.

Associate Professor Qing Li, co-convenor of the conference and computational biomedical expert said: "Computer-assisted modelling can be applied to simulate interaction of living tissues with prosthetic therapy. Models generated for analysis by surgical teams assist in determining the best treatment for patients. Surgical strategies can be simulated and possible short or long term outcomes can be predicted by computational mechanics approaches before a single step in the actual surgery is taken. Its effectiveness in solving real-world problems and its ability to provide deeper understandings of natural phenomena and engineered systems is what makes it so exciting."

CM methods are also used to study functional materials, atmospheric changes, ocean currents, surface flow in rivers, subsurface flows in oil reservoirs, the simulation of a supernova or explosion of a star, or geological phenomena such as the movement and evolution of polar ice caps or the tectonic plates. It allows engineers and scientists to understand very sophisticated systems with a large range of spatial and temporal scales, from macro, micro to nano levels.

Back to Contents

Aerospace Design

Dr Dries Verstraete
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- Aircraft design
- Unmanned aerial vehicles
- Micro gas turbines
- Hybrid electrical propulsion for unmanned aerial vehicles
- Hydrogen in aviation
- Propulsion and structures of hypersonic aircraft

Aeroelasticity

Dr Gareth Vio
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- Non-linear aeroelasticity
- Non-linear vibration
- Non-linear system identification
- Gust response
- Aeroelastic tailoring
- Design of composite structures
- Morphing structures
- Natural selection optimization

Aerodynamics

Dr Ben Thornber
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ben.thornber@sydney.edu.au

(Also a member of the Fluid Dynamics Research Group)

My research in computational fluid dynamics aims to develop more efficient and accurate ways of simulating the flow of gases and liquids. The resulting understanding can then be used in a diverse range of applications, from reducing drag in road vehicles, calculating lift of aircraft and designing rockets that achieve the required thrust, through to understanding fluid mixing in supernovas.

Flight Mechanics

Associate Professor Peter Gibbens
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The Variable Stability Flight Simulator (VSFS) is an exclusive project to the University of Sydney, a national first. In addition to the application of the VSFS to AMME flight mechanics courses, the simulator offers significant potential in other areas. For instance, current post-graduate study is being performed with the aim of producing an avionics course based on the simulator systems. Other post-graduate projects involve guidance and control (landing and flight path) using visual systems - simulated with the VSFS.

Finite Element Analysis; Composite & Intelligent Structures

Professor Liyong Tong
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(Also a member of Center for Advanced Materials Technology, CAMT)

Current research areas and projects include:

- Failure analysis and damage tolerance of adhesive bonded composite joints
- Modeling behavior of 3D reinforced composite materials, including transverse stitching
- Behavior of composite plates and shells
- Smart structures using PZT sensors/actuators, including damage detection and performance control of thin-walled structures

Space Engineering

Dr Doug Auld
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(Also a member of the Fluid Dynamics Research Group)

The DSMC (Direct Molecular Simulation - Monte Carlo Method) gas flow simulation technique was pioneered by Emeritus Professor Graeme Bird in this School. The method was originally used for simulation of rarefied gas flow around re-entry vehicles, but has now progressed to the stage of being a useful tool for solving a large range of aerodynamic and aerospace problems such as:

- Simulation of flow separation in near continuum region
- Rankine-Heugonot weak/strong shock reflection solutions
- Nano-Fluid Simulations
- Investigation of stability of low Reynolds number flows

Professor Salah Sukkarieh
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(Also a member of the Australian Centre for Field Robotics ACFR)

- Planetary Rover Systems
- Navigation in GPS denied environments
- Multi-robot systems for Space
- Multi-satellite navigation and control
- Robotics for Education
- Robotics for Agriculture
- Commercial Aviation

Dr Xiaofeng Wu
P: +61 2 9036 7053
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- Small Satellite bus design
- Fault tolerance systems design
- Remote sensing

Unmanned Aerial Vehicle (UAV) Design

Associate Professor KC Wong
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Current UAV related research activities include the following:

- Autonomous remote sensing using UAVs
- Decentralised navigation and control of autonomous flight vehicles
- Simultaneous localisation and map building for autonomous flight vehicles
- Design and development of rapid prototype UAVs
- Wind-tunnel and flight based experimental research in aerodynamics and flight performance
- Modelling of engine/propeller performance and aircraft stability characteristics
- High fidelity aircraft model development for simulation based control system validation
- Trajectory optimisation and autonomous guidance for unmanned aircraft
- Sensor fusion strategies for state estimation using multiple redundant sensors, including Global Positioning Systems (GPS)
- Using GPS for aircraft attitude determination
- System identification methods and neural networks for fault detection and reconfiguration
- Robustness analysis of control laws in the presence of uncertain dynamics and wind gusts
- Robust nonlinear high-performance manoeuvre tracking for autonomous aircraft
- Autonomous safe recovery and landing of a UAV
- Terrain Following for autonomous flight vehicles
- Integration of available technologies into operational UAV systems
- Real-time fight control software synthesis for UAVs
- Design and fabrication of airframe components using advanced composite materials

Research Grants *

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Australian Research Council (ARC) Discovery Projects (DP)	Tong, Liyong	Design of compliant structure systems with integrated actuators	Jan 2011 - Mar 2014	**290,000**
Australian Research Council (ARC) Discovery Projects (DP)	Tong, Liyong	Understanding multi-scale reinforcement of carbon fibre composites	Jun 2013 - Dec 2015	**381,000**
Defence Science and Technology Organisation Research Support	Verstraete, Dries	Fuel-Cell Unmanned Aircraft System Hardware-in-the-loop Simulation	Jul 2011 - Jun 2014	**52,000**

*Professor Salah Sukkarieh's research grants are reported under Australian Centre for Field Robotics, ACFR

Back to Contents

Biomedical Engineering

Professor Andrew Ruys
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(Also a member of the Center for Advanced Materials Technology, CAMT)

- Biomaterial synthesis & testing
- Medical device design and testing

Bone Biology & Biomaterials

Associate Professor Colin Dunstan
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colin.dunstan@sydney.edu.au

A/Prof Dunstan is a respected authority on bone metabolism with over 30 years of experience in both clinical and basic research. He has extensive experience in both academic and industry (Amgen) settings. A/Prof Dunstan has researched extensively the regulation of bone formation and resorption, both in vivo and in vitro, leading to publications in Nature and Cell. A primary career achievement has been in contributing to the discovery of the roles of RANKL, RANK and osteoprotegerin in regulating bone resorption and in the development of the RANKL antagonist denosumab, now approved for use as a therapeutic for clinical use in both osteoporosis and metastatic bone disease. In addition, he conducts research into bone and cancer cell interactions and since 2008 he has also been an active researcher of biomaterial interactions with bone cells, contributing to discoveries leading to patents and a licensing agreement.

Microstructural Materials Design

Professor Qing Li
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(Also a member of the Center for Advanced Materials Technology, CAMT)

- Computational scaffold tissue engineering
- Design optimization for stents
- Topology optimisation for metamaterials
- Bone remodeling for orthopaedics
- Dental biomechanics & biomaterials

Tissue Engineering & Biomaterials

Professor Hala Zreiqat
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Professor Zreiqat is a National Health and Medical Research Fellow, Head of the Biomaterials and Tissue Engineering Research Unit. Her group consists of multidisciplinary team of researchers including engineers, cell and molecular biologists and clinicians. She specializes in developing engineered biomaterials and scaffolds for skeletal tissue applications, and investigating their effect on in vitro and in vivo osteogenesis. Her team conducts research to gain greater understanding of bone/cartilage and endothelial cells biology when in contact with engineered biomaterials.

Research Grants

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Australian Research Council (ARC) Discovery Projects (DP)	Li, Qing	Topology Optimisation of Periodic Structures for Stent Design	Jan 2010 - Dec 2014	**300,000**
Australian Research Council (ARC) Discovery Projects (DP)	Li, Qing	Topology Optimisation? An Engineering Approach to Design of Metamaterials	Jan 2011 - Apr 2014	**210,000**
Australian Research Council (ARC) Future Fellowships (FT)	Li, Qing	Computational Design for Engineering Micro/Nanotopography	Dec 2012 - Jun 2016	**822,014**
Australian Research Council (ARC) Discovery Projects (DP)	Li, Qing	Biotransport Design for Engineering Microenvironment in Scaffolds	May 2013 - May 2016	**315,000**
Australian Research Council (ARC) Discovery Projects (DP)	Li, Wei	Topography optimization of implants for enhancing osseointegration	Jan 2010 - Jan 2015	**600,000**
National Health and Medical Research Council (NHMRC) Early Career Fellowships (ECF)	Lu, Zufu	Smart synthetic biomaterial for bone tissue regeneration	Jan 2012 - Dec 2015	**324,892**
Cancer Council New South Wales Research Project Grants	Seibel, Markus	Novel Cytoplasmic Functions of the Vitamin D Receptor in Bone Metastases	Jan 2013 - Dec 2015	**359,673**
Australian Research Council (ARC) Discovery Early Career Researcher Award (DECRA)	Zhou, Shiwei	Topology Optimisation for Advanced Engineered Nanostructures	Jan 2012 - Dec 2014	**375,000**
Australian Research Council (ARC) Linkage Projects (LP)	Zreiqat, Hala	Scaffolds for bone tissue regeneration and use in orthopaedic applications	Jan 2009 - Jan 2015	**504,000**
Harvard Club of Australia Foundation Australia - Harvard Fellowship	Zreiqat, Hala	2013 Australia-Harvard Fellowship	Sep 2013 - Oct 2013	**10,000**
National Health and Medical Research Council (NHMRC) Project Grants	Zreiqat, Hala	Harnessing the physiological effects of strontium and zinc to produce novel biomaterials for orthopaedic applications	Jan 2010 - Dec 2014	**539,500**
National Health and Medical Research Council (NHMRC) Career Awards: Research Fellowships	Zreiqat, Hala	Senior Research Fellowship A	Jan 2011 - Dec 2015	**570,640**
Rebecca L Cooper Medical Research Foundation Equipment Grant	Zreiqat, Hala	Microstructural Design Strategies for Repairing Traumatic Skeletal Injuries	Jan 2013 - Dec 2013	**21,000**
Rebecca L Cooper Medical Research Foundation Equipment Grant	Zreiqat, Hala	Engineering strategies for bone regeneration through microstructural design	Jan 2014 - Dec 2014	**22,000**

Back to Contents

Center for Advanced Materials Testing (CAMT)

The Centre for Advanced Materials Technology (CAMT) within the school has a high international profile for its quality research over a wide field in materials characterisation and processing, information technology, nanotechnology, advanced manufacturing, solid mechanics and biotechnology.

In the last decade, the CAMT has initiated many new research activities in these areas such as nanomechanics, nanotribology, nano/bio-materials and ultraprecision/nano-machining, smart materials and structures, eco-materials, superhard films and coatings, polymer blends and alloys, and functionally graded materials. CAMT has positioned itself at the forefront of the disciplines, has a strong research link with many other leading institutions worldwide and is very well equipped with updated facilities.

Advanced Materials & Fracture Mechanics

Professor Yiu-Wing Mai
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- Materials science and engineering
- Advanced fibre composites
- Polymer blends; forming, joining and welding
- Biomimetics
- Biomaterials and biomechanics
- Failure analysis and diagnosis
- Mechanical behaviour of materials (metals, polymers, ceramics, composites, etc.)
- Fracture and fatigue mechanics
- Friction and wear
- Advanced thin films; eco-materials; smart materials and structures

Composite Materials

Professor Lin Ye
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- Property profile of composite materials (fatigue and fracture, residual strength, long-term properties, structure-property relationship and microscopic characterisation)
- Interlaminar stresses and delamination in composite laminates
- Manufacturing techniques and processing models for high performance polymer composites
- Composites design
- Rehabilitation of infrastructure using fibre composites, polymer composite tribology and epoxy adhesive joints for engineering structures

Precision Manufacturing & Nanotribology

Dr Li Chang
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- Precision manufacturing
- Nanomechanics
- Friction and wear
- Polymer composites
- Nanomaterials and nanocomposites

Transmission Electron Microscopy

Professor Xiaozhou Liao
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- Structural characterisation of advanced structural and functional materials
- The structure-property relationships of materials
- Nanomaterials

Research Grants

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) Australia China Science and Research Fund - Group Missions	Chang, Li	Electrostatic Levitation Aided Near-Contact Sliding: Superlubricity in Micro- and Nano-Electromechanical Systems	Jan 2012 - Jun 2013	**38,400**
Group of Eight Germany Joint Research Co-operation Scheme	Chang, Li	Nanomechanical characterization of the ultra-thin transfer film in polymer tribology	Jan 2011 - Dec 2013	**20,000**
Australian Research Council (ARC) Discovery Projects (DP)	Liao, Xiaozhou	Atomistic mechanisms of the mechanical behaviour of nanostructured silicon carbide films	Jan 2009 - Dec 2013	**300,000**
Australian Research Council (ARC) Linkage Projects (LP)	Liao, Xiaozhou	In-situ transmission electron microscopy nanoindentation investigation of advanced structural metallic materials	Jan 2010 - Jan 2014	**301,338**
Australian Research Council (ARC) Discovery Projects (DP)	Liao, Xiaozhou	Interactions between linear and interfacial crystalline defects and their impact on mechanical properties in nanostructured metals and alloys	Jan 2012 - Dec 2014	**300,000**
Australian Research Council (ARC) Future Fellowships (FT)	Liao, Xiaozhou	The effect of structure and size on the mechanical behaviour of III-V semiconductor nanowires	Jan 2012 - Feb 2016	**817,856**
Australian Research Council (ARC) Linkage Infrastructure, Equipment and Facilities (LIEF)	Liao, Xiaozhou	Joint processing facility for the production of far-from-equilibrium alloy structures	Jan 2012 - Aug 2013	**131,915**
Australian Research Council (ARC) Future Fellowships (FT)	Liu, Hong-Yuan	Fatigue Life Prediction of Nano-filler Modified Composites	Nov 2009 - Nov 2014	**624,300**
University of Sydney Bridging Fellowship	Liu, Hong-Yuan	A Study on Nanofiller-film Reinforced Fibre Composites Delamination	Nov 2013 - Nov 2014	**81,020**
Australian Research Council (ARC) Discovery Projects (DP)	Mai, Yiu-Wing	Nanostructure Design and Toughening Mechanisms of Novel Thermosets	Jan 2008 - Mar 2013	**630,000**
Australian Research Council (ARC) Discovery Projects (DP)	Mai, Yiu-Wing	Toughening Thermosets by Highly Ordered Nanostructures	Jan 2012 - Dec 2014	**345,000**
Australian Research Council (ARC) Discovery Projects (DP)	Mai, Yiu-Wing	Multi-functional graphene interleaves in multi-scale carbon fibre reinforced composites	Mar 2013 - Dec 2016	**460,000**
Australian Research Council (ARC) Discovery Early Career Researcher Award (DECRA)	Tang, Youhong	Water-swellable rubber with nanoparticle-enabled super capacity as smart water-leakage sealant	Jan 2012 - Dec 2014	**375,000**
Australian Research Council (ARC) Discovery Projects (DP)	Wang, Yanbo	Effects of grain size on the deformation mechanisms and mechanical properties of Gum Metals (Ti alloys)	Jan 2011 - Jan 2014	**255,000**
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) Australia China Science and Research Fund - Joint Research Centres	Ye, Lin	Australia-China Joint Research Centre for Minerals, Metallurgy and Materials (3-M Centre)	Jan 2013 - Dec 2014	**2,500**

Back to Contents

Back to Contents

Australian Center for Microscopy and Microanalysis

The Australian Center for Microscopy & Microanalysis (ACMM) is a cross-disciplinary research center, bringing together world-class research activities on the characterisation of materials and biological structures at the micro, nano and atomic scales. The center's research services are delivered by Sydney Microscopy & Microanalysis (SMM), one of the largest and most comprehensive of its kind in the world.

Professor Simon Ringer
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Director, ACMM

- High resolution microscopy of materials
- Microstructure – property relationships in materials
- Atomic clustering processes and materials design
- Light Alloys
- Ultra-high strength steels
- Functional nanomaterials
- Atom probe microscopy

Associate Professor Julie Cairney
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Deputy Director, ACMM

- Relationship between microstructure & properties of materials
- Current materials of interest include steels, non-ferrous engineering alloys (such as Ni-based superalloys and Ti alloys), nanocrystalline metals, hard coatings (including nanocomposites and thermal barrier coatings), and thin films (including ferroelectrics)
- Characterisation techniques include Focused Ion Beam (FIB) Techniques, Atom Probe Tomography (APT) Electron Backscatter Diffraction (EBSD), Nanoindentation and Mechanical Testing

Research Grants

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Australian Research Council (ARC) Linkage Projects (LP)	Cairney, Julie	Atomic - scale insights into interfaces in ultrafine-grained, low - solute alloys	Jan 2012 - Dec 2014	**270,000**
Australian Research Council (ARC) Linkage Projects (LP)	Cairney, Julie	Wear-resistant alloys for the mining industry	Jul 2013 - Jun 2016	**300,000**
Department of Industry, Innovation, Climate Change, Science, Research & Tertiary Education (Fed) Australia China Science & Research Fund-Science & Research Knowledge Exchange	Ringer, Simon	Australia-China Research centre for light metals	Jan 2013 - Dec 2014	**98,000**
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) Collaborative Research Infrastructure Scheme	Ringer, Simon	AMMRF - HQ CRIS	Jan 2013 - Dec 2014	**5,076,036**
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) National Collaborative Research Infrastructure Strategy (NCRIS)	Ringer, Simon	AMMRF - HQ NCRIS2013	Sep 2013 - Jun 2015	**1,692,012**
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) Collaborative Research Infrastructure Scheme	Ringer, Simon	AMMRF- Sydney Node CRIS	Jan 2013 - Dec 2014	**1,166,000**
Department of Innovation, Industry, Science and Research (Federal) National Collaborative Research Infrastructure Strategy (NCRIS)	Ringer, Simon	AMMRF - Sydney Node NCRIS2013	Aug 2013 - Jun 2015	**175,500**
Department of Trade and Investment, Regional Infrastructure and Services (NSW) Research Support	Ringer, Simon	Australian Microscopy and Microanalysis Research Facility (AMMRF)	Jul 2013 - Jun 2015	**520,000**
National eResearch Collaboration Tools and Resources Research Support	Ringer, Simon	Characterisation Virtual Laboratory: research environments for exploring inner space	Jun 2012 - Dec 2014	**186,082**

Back to Contents

Australian Centre for Field Robotics

The Australian Centre for Field Robotics (ACFR) is a teaching and research centre based in the School of Aerospace, Mechanical and Mechatronic Engineering at The University of Sydney.

The ACFR is one of the largest robotics research institutes in the world and has been instrumental in developing breakthrough technologies and in conducting world-leading research and development of field robotics principles and systems.

Research Program

The research program focuses on enabling technologies in four core areas:

1. **Sensors, Fusion & Perception**: sensing, representations of information, the modelling and management of uncertainty, data fusion and perceptual interpretation.
2. **Actuators, Control & Decision** of individual micro and macro machines, of heterogeneous groups of platforms and sensors, and of contact and interaction with the environment and each other.
3. **Modelling, Learning & Adaptation**: supervised and unsupervised learning in unstructured and dynamic environments, multi-agent learning, pattern recognition, concept formation and adaptation to the environment.
4. **Architectures, Systems & Cooperation**: design and optimisation of "systems of systems", modelling and management of complexity, large scale systems theory, and modelling of information flow, negotiation and cooperation between platforms and intelligent systems.

These four core research areas define the science of field robotics and intelligent systems and represent the main focus of the ACFR. They draw together common themes and research priorities from within the various research groups and labs within the ACFR, with the goal of supporting long-term developments across the whole field robotics and intelligent systems area.

The research groups and labs ensure that the many threads of the core research areas are brought together and that a bridge exists to future commercial development of research results for our partners and centres and new application areas.

ACFR Industry and Government Partners

- Agency for Defence Development
- Australian Defence Force (ADF)
- Australian Plague Locust Commission
- Australian Space Research Program
- BAE Systems
- Brambles Industrial Services
- DEEDI
- Defence Science and Technology Organisation (DSTO)
- Electrolux
- Horticulture Australia Limited
- Integrated Marine Observing System
- Itech
- Komatsu
- L3-Communications Interstate Electronics
- Leica
- Meat and Livestock Australia
- NSW Roads and Traffic Authority (RTA)
- Patrick Stevedores
- Qantas
- Renault
- Rio Tinto
- Singapore Technologies Aerospace
- Thales
- Toll Holdings
- Toyota
- US Air Force Office of Scientific Research (AFOSR)
- US Air Force Research Laboratories (AFRL), Eglin AFB
- US Air Force Research Laboratories (AFRL), Wright Patterson AFB
- US Office of Naval Research

Professor Eduardo Nebot
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Director, ACFR

Group Leader, Intelligent Vehicles and Safety Systems

Our group conducts research in the areas of vehicle-to-vehicle (V2V) communication, vehicles safety systems, navigation, and driver intent and safety evaluation.

We are currently running a number of projects in the area of sensing, localisation, mapping and safety. Some of these works are in collaboration with industry partners. We have deployed our systems to a number of above ground mining sites around the world.

Professor Salah Sukkarieh
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(Also a member of Aerospace Research Group)

- Planetary Rover Systems
- Navigation in GPS denied environments
- Multi-robot systems for Space
- Multi-satellite navigation and control
- Robotics for Education
- Robotics for Agriculture
- Commercial Aviation

Associate Professor David Rye
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Co-Director of the Centre for Social Robotics
Our objective is to study and understand human-robot interaction in social environments.

Our current projects include:
- Autonomous Interactive Robots
- Automated Cooking Project
- Hand-held Autonomous Interactive Objects
- Modelling Human Movement
- Photodynamic Crystal Screen

Associate Professor Stefan Williams
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Program Leader, Marine Robotics
We undertake fundamental & applied research in a variety of areas related to the development & deployment of marine autonomous systems. The ACFR, as operator of a major national Autonomous Underwater Vehicle (AUV) Facility, conducts AUV-based surveys at sites around Australia and overseas. These AUV surveys are designed to collect high-resolution stereo imagery and oceanographic data to support studies in the fields of engineering science, ecology, biology, geoscience, archaeology and industrial applications.

Member of the Centre for Social Robotics
My research involves Fish-Bird, an interactive kinetic artwork in which two robots in the form of wheelchairs communicate with their audience, and with each other, through movement and written text.

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Radar systems
Integration and synchronisation of a pair of 77GHz imaging radars to produce bistatic images of targets, with particular emphasis on foreign object detection on runways.

Member of the Mine Intelligent Vehicles and Safety Systems Group
Our group focuses on the development of algorithms, sensors and system models to provide situational awareness capabilities for the prediction of vehicle movement and the estimation of risk.

Rehabilitation engineering
I am currently working on a number of devices, including a system to investigate walking balance to identify vestibular diseases; an at-home test to evaluate people with Parkinson's disease; a birth simulator to help midwives learn how to rotate foetal heads and so minimise the requirement for caesarean sections; and a glasses-mounted device for people with dementia to identify where they are and prompt them to perform activities they might have forgotten, or to notify their carers about their activities.

Dr Ian Manchester
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- Nonlinear system identification and model reduction
- Control and motion planning for highly dynamic robots
- Stability and robustness of limit cycles
- Dynamic vehicle routing and multi-robot control
- Experiment design for system identification
- Optimization, convex relaxations, etc.
- Applications in neuroscience and medicine

Research Grants

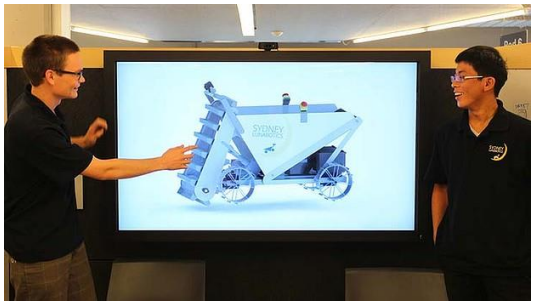
Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Australian Research Council (ARC) Discovery Projects (DP)	Douillard, Bertrand	Multi-Scale Recognition: Generating Meaning from Multi-Resolution Data	Jun 2011 - Jun 2015	**255,006**
Australian Research Council (ARC) Federation Fellowship (FF)	Durrant-Whyte, Hugh	Data Fusion and Perception in Autonomous Networks	Jan 2007 - Oct 2014	**1,606,210**
US Army Research Laboratory (USA) Subcontract	Durrant-Whyte, Hugh	MAST: Micro Autonomous Systems and Technology	May 2008 - Nov 2013	**260,982**
Australian Research Council (ARC) Discovery Projects (DP)	Manchester, Ian	Reliable and efficient algorithms for modelling dynamical systems from data	Jan 2013 - Dec 2015	**337,000**
Australian Agency for International Development (AUSAID) Public Sector Linkages Program (PSLP) Asia	Nebot, Eduardo	Enhanced capacity for the design and deployment of new technology for increased mining safety in Latin America	Jul 2012 - Jun 2013	**212,960**

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Australian Research Council (ARC) Linkage Projects (LP)	Nebot, Eduardo	Development of fundamental perception technology and algorithms for mining safety	May 2012 - Jul 2016	**480,800**
Australian Research Council (ARC) Discovery Projects (DP)	Pizarro, Oscar	Cost-effective autonomous technologies for long term monitoring of marine protected areas	Jan 2010 - Jan 2015	**798,000**
Australian Research Council (ARC) Linkage Projects (LP)	Pizarro, Oscar	High quality benthic and demersal surveys from small form factor underwater robots	Jul 2013 - Jun 2016	**290,000**
Department of Fisheries (WA) Research Support	Pizarro, Oscar	Development of an industry-based habitat mapping/monitoring system.	Jun 2013 - Jun 2014	**45,000**
Australian Research Council (ARC) Discovery Early Career Researcher Award (DECRA)	Ramos, Fabio	Data fusion and active sensing for environment monitoring	Mar 2012 - Mar 2015	**375,000**
Australian Research Council (ARC) Linkage Projects (LP)	Sukkarieh, Salah	The endangered swift parrot as a model for managing small migratory birds	Jan 2012 - Dec 2014	**60,051**
Department of Education, Employment and Workplace Relations Education 2020: Enabling learning in science, engineering and mathematics	Sukkarieh, Salah	Education 2020: Enabling learning in science, engineering and mathematics	Sep 2012 - May 2015	**1,297,003**
Department of Innovation, Industry, Science and Research (Federal) Australian Space Research Program	Sukkarieh, Salah	Pathways to space: Empowering the internet generation	Jan 2009 - Dec 2013	**283,196**
Department of Primary Industries (Vic) Research Support	Sukkarieh, Salah	Alligator Weed detection with UAV's	Mar 2013 - Apr 2013	**3,000**
Horticulture Australia Limited Research and Development Industry Call	Sukkarieh, Salah	Autonomous perception systems for horticulture tree crops	May 2012 - Nov 2015	**599,500**
Horticulture Australia Limited Research and Development General Call	Sukkarieh, Salah	An intelligent farm robot for the vegetable industry	Jun 2013 - May 2015	**941,936**
Queensland Department of Employment, Economic Development and Innovation Research Contract	Sukkarieh, Salah	Multi-sensor Fusion and Classification of Aerial Imagery for Automated RIFA Detection	Jan 2012 - Dec 2013	**820,916**
Australian Research Council (ARC) Discovery Projects (DP)	Velonaki, Mari	Physicality, Tactility, Intimacy: Interaction between Humans and Robots	Jan 2009 - Dec 2013	**753,757**
Australian Research Council (ARC) Discovery Projects (DP)	Velonaki, Mari	Physicality, Tactility, Intimacy: Interaction between Humans and Robots	Jan 2011 - Dec 2013	**21,390**
Australian Research Council (ARC) Linkage Projects (LP)	Williams, Stefan	Autonomous repeatable surveys for long term monitoring of marine habitats	Jan 2009 - Oct 2014	**320,000**
Australian Research Council (ARC) Linkage Projects (LP)	Williams, Stefan	Supervised autonomy for autonomous underwater vehicles (AUVs) using limited bandwidth communication channels	Jan 2011- Jan 2014	**245,538**
Australian Research Council (ARC) Future Fellowships (FT)	Williams, Stefan	Delivering information suitable for studying spatial and temporal variability in benthic habitats using Autonomous Underwater Vehicles	Feb 2012 - Feb 2016	**759,836**
Australian Research Council (ARC) Linkage Infrastructure, Equipment and Facilities (LIEF)	Williams, Stefan	Autonomous Benthic Observing System	Jan 2013 - Dec 2013	**385,000**

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	Awarded Amount (AUD)
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) Research Support	Williams, Stefan	Marine Video	Jan 2012 - Dec 2012	**255,000**
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Fed) Research Support	Williams, Stefan	The provision and deployment of Autonomous Underwater Vehicles to undertake navigated time series measurements of benthic habitats	Jul 2013 - Jun 2015	**322,514**
Department of Innovation, Industry, Science and Research (Federal) National Collaborative Research Infrastructure Strategy (NCRIS)	Williams, Stefan	Use of Autonomous Underwater Vehicle at the IMOS AUV Facility	Jul 2008 - Jun 2013	**1,582,499**
Department of Primary Industries (NSW) Research Support	Williams, Stefan	Australian Centre for Field Robotics	May 2013 - Jul 2013	**81,000**
Science and Industry Endowment Fund John Stocker Postdoctoral Fellowships	Williams, Stefan	Image-based automated macrobenthic species identification, counting and sizing - Fellow Nourani Vatani	Jan 2011 - Dec 2013	**276,000**

LUNABOTICS

Sydney Lunabotics is an Australian team of undergraduate students representing the University of Sydney at NASA's Lunabotics Lunar Mining Competition.



The 2013 team comprised undergraduates studying aerospace, mechatronic and mechanical engineering, astrophysics, computer science and mathematics. The team was led by Daniel Linton, a third year Aeronautical (Space) Engineering student with support from Professor Salah Sukkarieh and Dr Ali Göktoğan from the Australian Centre for Field Robotics and sponsors.

The objective of the competition is for teams to design and build a mining robot that can traverse the simulated Martian chaotic terrain, excavate 10kg of fake lunar soil and deposit this soil into a Collector Bin within 10 minutes.

The University's team was ranked 4th on the moon dust mine and 7th out of 50 competitors in the on-site mining category with its battery-powered robot.

The competition is conducted by NASA at the Kennedy Space Centre Visitor Complex with $5,000 of prizes.

Back to Contents

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- Rheology
- Polymer processing
- Computational mechanics

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- Soft Matter: modelling/ experiments/simulation of complex materials (e.g. polymers, suspensions, biological).
- Molecular rheology: understanding rheological properties of complex materials from their molecular structure.
- Surface phenomena: Understanding the phenomena at liquid-solid interfaces (e.g. wetting, nano-fluidics)
- Nanotribology: understanding friction/lubrication/wear at the molecular/atomic level.
- High performance computational nanotechnology: developing/implementing efficient algorithms to simulate systems at molecular/atomic level on supercomputers.

Research Grants

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	**Awarded Amount (AUD)**
Australian Research Council (ARC) Discovery Projects (DP)	Tanner, Roger	Rheology of suspensions with viscoelastic matrices	Jan 2011 - Dec 2014	**360,000**

Back to Contents

Professor Assaad Masri
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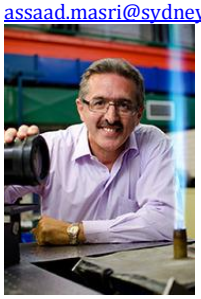

- Lifted flames
- Incineration of halons and CFC's
- Chemical inhibition of halons in flames
- Experimental investigations of methanol and ethanol flames
- PDF-Monte Carlo calculations of turbulent non-premixed flames

Dr Matthew Cleary
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- Turbulent combustion modelling
- Computational fluid dynamics (CFD)
- Biofuels
- Carbon dioxide capture technology
- Turbulent dispersion of multiphase flows (combustion and biomedical applications)
- Stochastic modelling of marine mammals for ship collision avoidance

Dr Matthew Dunn
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- Premixed, stratified and non-premised combustion
- Turbulent flows and CFD
- Laser diagnostics and spectroscopy
- Biofuels and Biodiesels
- Multiscale wavelet analysis
- Refrigeration and HVAC systems
- Thermodynamics and energy generation

Research Grants

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	**Awarded Amount (AUD)**
Australian Research Council (ARC) Discovery Projects (DP)	Cleary, Matthew	Predictive models for the combustion of multi-component bio-fuels	Jan 2013 - Dec 2015	**290,000**
Australian Research Council (ARC) Discovery Projects (DP)	Masri, Assaad	Strongly Transient Processes in Turbulent Combustion	Jan 2010 - Dec 2013	**653,555**
Australian Research Council (ARC) Discovery Projects (DP)	Masri, Assaad	Towards a Unified View of Clean Turbulent Combustion	Jan 2011 - Apr 2016	**1,250,000**
Australian Research Council (ARC) Discovery Projects (DP)	Masri, Assaad	Investigations of the atomisation and turbulent combustion of biodiesels	Feb 2013 - Dec 2016	**500,000**

Back to Contents

Professor Steve Armfield
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My main focus is on the development of computational models and algorithms to allow the prediction of highly unsteady, buoyancy-driven and -dominated flows, such as the natural convection boundary layers that develop adjacent to vertical heated surfaces, the two-layer mixing flow that occurs when a lighter fluid passes over a denser fluid, and thermal fountains and plumes. Such flows occur in many environmental and industrial settings, such as in rivers, estuaries and atmospheric boundary layers, and in building heating, cooling and ventilation.

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- Heat and mass transfer
- Electronic cooling
- Ventilation
- Biomedical fluid mechanics

Associate Professor Michael Kirkpatrick
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- Environmental Fluid Dynamics
- Mathematical Modelling and Computational Methods
- Renewable Energy Technology
- Engines

Research Grants

Sponsor/ Grant Name	Chief Investigator	Project Title	Duration	**Awarded Amount (AUD)**
Australian Research Council (ARC) Discovery Projects (DP)	Armfield, Steven [Kirkpatrick, Michael]	Investigation and optimisation of displacement ventilation and cooling systems	Jan 2009 - Jun 2014	**300,000**
Australian Research Council (ARC) Discovery Projects (DP)	Armfield, Steven	Conjugate natural convection boundary layers	Feb 2013 - Jan 2016	**425,000**
Australian Research Council (ARC) Discovery Projects (DP)	Kirkpatrick, Michael	The Dynamics of Turbulent Entrainment in Sheared Convective Boundary Layers	Jun 2011 - Nov 2014	**350,000**
Australian Research Council (ARC) Linkage Projects (LP)	Nagarathinam, Srinarayana	Design tools for optimising data centre layout to minimise energy usage	Jan 2010 - Dec 2013	**288,000**
Australian Research Council (ARC) Discovery Projects (DP)	Williamson, Nicholas	Purging and destratifying of thermal and saline pools in Australia's inland rivers	Jan 2011 - Jan 2014	**301,400**

Back to Contents

The Faculty of Engineering & IT hosted the 25th Annual Research Conversazione on Friday, 1 November, 2013.

Research Conversazione is the Faculty of Engineering and Information Technologies' annual showcase of research to industry. This event highlights our students' innovative, applied research that addresses both current and future global challenges.

The event provides a forum for our industry guests to engage with our leading research and coursework students, meet our academic experts and forge linkages for future collaborations.

There were 39 posters presented from the School of Aerospace, Mechanical & Mechatronic Engineering which were judged by industry guests and academics from the Faculty for the following prizes generously sponsored by Shelston IP Patent Attorneys.

Shelston IP Best Poster Award for Undergraduates - $500
Banjamin Morrell (Aeronautical)
Mischa Jurkiewicz (Biomedical)
Carlos Bowkett (Mechanical)
Karlos Ishac (Mechatronics)
Trevor Hocksun Kwan (Space)

Shelston IP Best Poster Awards for Postgraduates - $500
Jen Jen Chung (Aeronautical)
Jiao Jiao Li (Biomedical)
Alex La Fontaine (Materials)
Hamed Kalhori (Mechanical)
Andrew Palmer (Mechatronics)
Xueliang Bai (Space)

Back to Contents

Formula SAE is a student engineering competition where teams design, construct and race a small open-wheeled racing car intended for use in weekend autocross competitions. All research, design and manufacture must be completed within a period of 12 months to prepare for the annual event held by the Society of Automotive Engineers Australasia. The three-day event scores teams on their design, costing and marketing skills as well as dynamic events of skid pad, acceleration, autocross and endurance.

Sydney Motorsport, the registered name of the School's F-SAE Team achieved 8th place from 23 competitors at this year's competition held at Victoria University's Werribee campus from 12 -15 December, 2013.

F-SAE (Formula-Society of Automotive Engineers)

Back to Contents

Research Output

ERA Rankings	
Aerospace Engineering	5 (citation based)
Biomedical Engineering	3 (citation based)
Materials Engineering	5 (citation based)
Mechanical Engineering	4 (citation based)
Autonomous Systems	4 (peer reviewed)

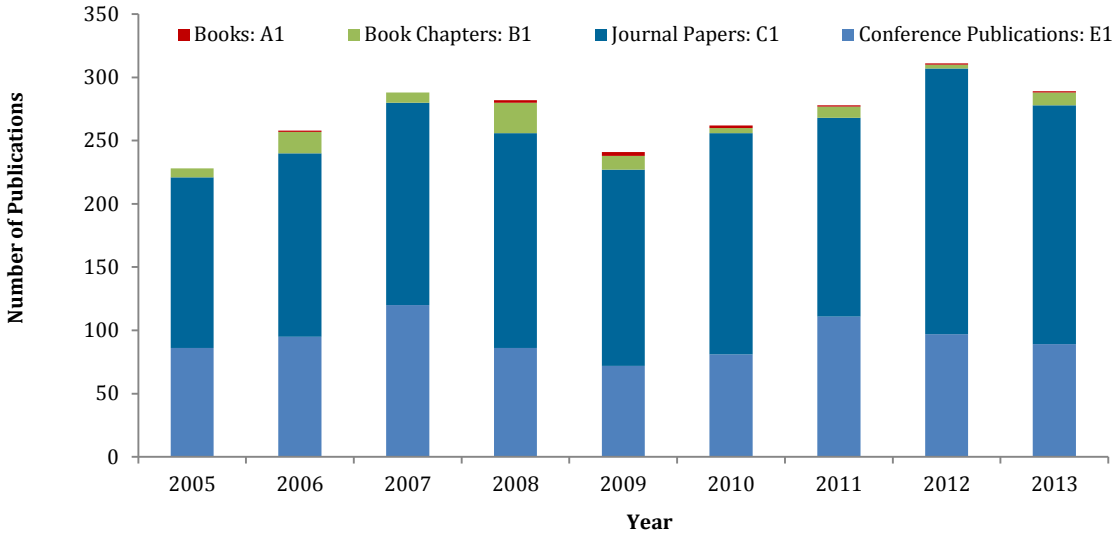
Publications as reported and approved for the University's Higher Education Research Data Collection (HERDC) 2013

A1: Authored research books published by commercial publisher : 1

B1: Authored research chapters in commercially published books : 10

C1: Refereed articles in peer reviewed journals : 189

E1: Full length peer reviewed papers published in conference proceedings : 89



Awarded in 2012 for projects commencing in 2013

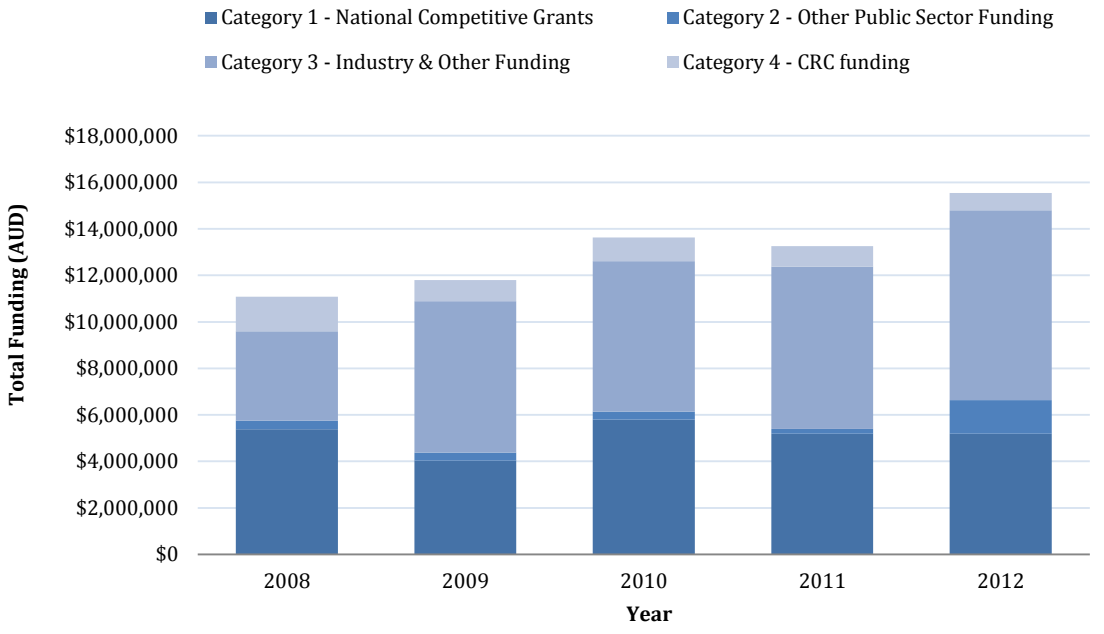
Category 1 - National Competitive Grants : $5,187,833

Category 2 - Other Public Sector Funding : $1,449,747

Category 3 - Industry & Other Funding : $8,156,935

Category 4 - CRC funding : $744,572

Research Income



Back to Contents

Doctor of Philosophy Graduates 2013

Abtahi, Mojtaba
Toughening of Polylactide (PLA): Routes Towards Improvements in Mechanical Properties and Toughness

Abuhashim, Tariq Salman Ahmad
Spatial Modelling from Monocular Images

Badra, Jihad
Experimental and Numerical Investigations of the Reactivity of Various Hydrocarbons over Platinum

Bender, Asher
Autonomous Exploration of Large-Scale Natural Environments

Brown, Iain Duncan
Cognitive Context Exploring Psychophysiological Correlates of Emotive and Cognitive Variables in Computer Based Tasks

Cadman, Joseph Edward
The Design of Cellular Materials Inspired by Nature - Characterisation, Design and Fabrication

Cao, Yang
Exploring the Grain Refinement Mechanisms Induced by High-Pressure Torsion Processing

Djanali, Vivien Suphandani
The Fractional Step Navier-Stokes Solver: Preconditioning and Application to Conjugate Natural Convection Boundary Layers

Dumble, Steven
Airborne Vision-Based Attitude Estimation and Localisation

Felfer, Peter Johann
Understanding Grain Boundary Segregation Through Atom Probe Tomography

Friedman, Ariell Lee
Automated Interpretation of Benthic Stereo Imagery

Gan, Seng Keat
Decentralized Information Gathering with Spatial-Temporal Constraints

Hall, Alexander Philip Kendall
Proxflyer MAV Aeromechanical Analysis and Design

Hattori, Tae
Investigation into Stability, Transition and Turbulence of Thermal Plumes

Hemakumara, Madu Prasad
UAV Parameter Estimation with Gaussian Process Approximations

Hernandez Gutierrez, Andres
Probabilistic Road Geometry Estimation Using a Millimetre-Wave Radar

Hill, Andrew John
Error Analysis for Multi-Agent Mapping and Data-Sharing

Hung, Calvin Kai-yuan
Class-based Object Detection and Segmentation in Low-Altitude Aerial Images

Kuo, Victor Che-jung
Enabling Parallel Wireless Communication in Mobile Robot Teams

Lau, Howard
Simulation and Visualisation of Cranial Electrical Conduction from a Cochlear Implant in Monopolar Stimulation Mode: Using Diffusion Tensor MRI

Lee, Cheng Choo
Micro/Nanoscale Fabrication and Testing of Small-Scale Structures Using Focused Ion and Electron Beam Technology

Luthfi
Numerical Investigation of Fountains Impinging on a Solid Surface and a Density Interface

Maeda, Guilherme Jorge
Learning and Reacting with Inaccurate Prediction: Applications to Autonomous Excavation

Mariam, Nazifa
Towards the Development of Millimetre Wave Harmonic Transponders for Tracking Small Insects

Medagoda, Lashika Janith Bandara
Mid-water Localisation for Autonomous Underwater Vehicles

Mustapha, Samir Ahmad
Detection of Debonding in Composite Sandwich Structures Based on Guided Waves

O'Loughlin, William Thomas
Investigations of Auto-ignition in Dilute Spray Flames

Ramin, Leyla
Molecular Dynamics Simulation of Self Assembled Monolayers

Schneider, Sven
A Probabilistic Framework for Classification and Fusion of Remotely Sensed Hyperspectral Data

Silvera Tawil, David
Artificial Skin and the Interpretation of Touch in Human-Robot Interaction

Soh, Khian Leong Edwin
Physical and Biological Characterisation of Foamed Porous Alumina Tissue Scaffolds Doped with Bioactive Ions

Doctor of Philosophy Graduates 2013

Steinberg, Daniel Matthew
An Unsupervised Approach to Modelling Visual Data

Vasista, Srinivas
Topology Optimisation Development and its Application to Morphing Aircraft Structures

Xie, Yu Xuan
The Effect of Niobium-rich Clusters on the Mechanical Properties of Ultra-thin Strip Cast Steels Produced by the CASTRIP Process

Xu, Zhe
An Information Theoretic Approach to Coordinated Multi-Robot Tracking

Zhang, Shengnan
Plasma Surface Modification for Improved Autohesion of PEEK for Biomedical Applications

Master of Philosophy Graduates 2013

Awin, Layth Ali
Flight Characterisation of an Instrumented Returning Boomerang

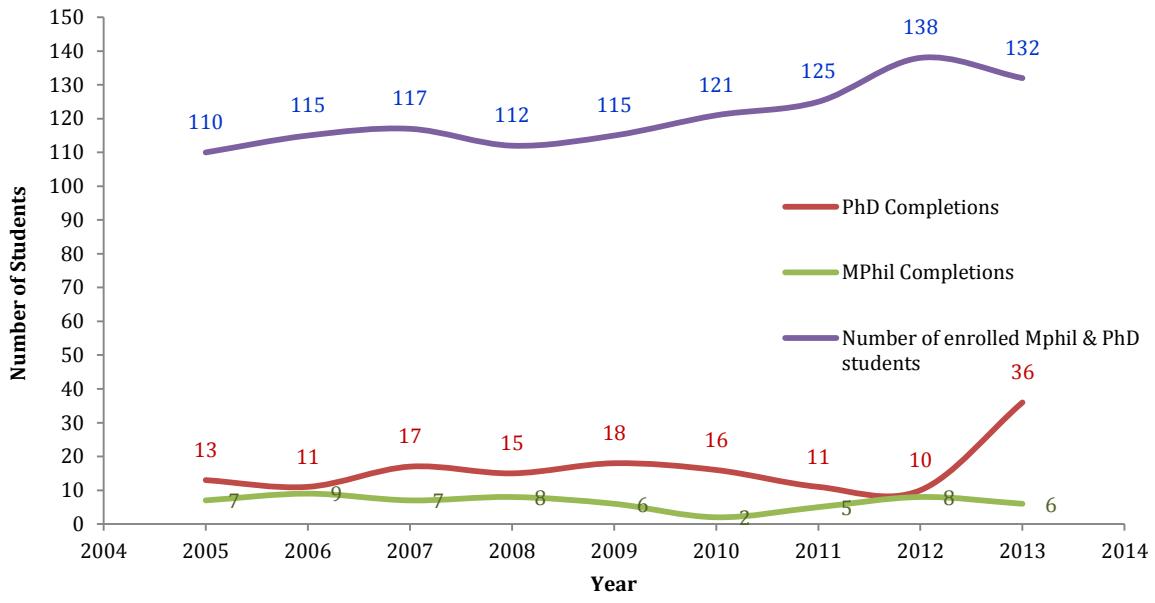
Chen, Zi Bin
Electron Microscopy Investigation of the Growth Mechanism of Semiconductor Quantum Dots Grown by Droplet Epitaxy

Mcallister, Rowan Thomas
Motion Planning and Stochastic Control with Experimental Validation on a Planetary Rover

Miles, Robert John
Portable Biodiesel Processor

Wang, Hongjian
Measuring Fracture Toughness of Plastic Materials by using Orthogonal Cutting Tests

Xiao, Size
Pico-Satellite Design and Test for i-INSPIRE Mission



Back to Contents

Books

Chen, X, Mai, Y 2013, *Fracture Mechanics of Electromagnetic Materials: Nonlinear Field Theory and Applications*, Imperial College Press, London, United Kingdom

Book Chapters

Boughton, E A, McLennan, S V 2013, Biomimetic scaffolds for skin tissue and wound repair, *Biomimetic biomaterials: Structure and applications*, Woodhead Publishing Ltd, Cambridge, 153-180

Boughton, P C, Roger, G J, Rohanizadeh, R, Mason, R S, Ruys, A J 2013, Functional gradients in natural and biomimetic spinal disk structures, *Biomimetic biomaterials: Structure and applications*, Woodhead Publishing Ltd, Cambridge, 127-150

Chang, L, Zhang, Z, Ye, L, Friedrich, K 2013, Synergistic effects of nanoparticles and traditional tribofillers on sliding wear of polymeric hybrid composites, *Tribology of Polymeric Nanocomposites: Friction and Wear of Bulk Materials and Coatings 2nd Edition*, Butterworth Heinemann, Oxford, UK, 49-89

Dasari, A, Yu, Z, Mai, Y 2013, Wear and scratch damage in polymer nanocomposites, *Tribology of Polymeric Nanocomposites: Friction and Wear of Bulk Materials and Coatings 2nd Edition*, Butterworth Heinemann, Oxford, UK, 551-570

Fitch, R C, McAllister, R T 2013, Hierarchical planning for self-reconfiguring robots using module kinematics, *Distributed Autonomous Robotic Systems: The 10th International Symposium*, Springer, Heidelberg, 477-490

Goktogan, A H, Won, D, Sukkarieh, S, Tahk, M 2013, View planning of a multi-rotor unmanned air vehicle for tree modeling using silhouette-based shape estimation, *Intelligent Autonomous Systems 12*, Springer, unknown, 519-531

Jabbarzadeh-Khoei, A, Ilies, I 2013, Effect of Roughness on Wettability of a Surface by Nano-droplets: Correlation With the Slip Length in Nanofluidics, *Nanotechnology 2013 Volume 2: Electronics, Devices, Fabrication, MEMS, Fluidics and Computational*, CRC Press, Not Known, 2, 560-563

Javadzadegan, A, Behnia, M, Yong, A, Kritharides, L 2013, Lesion Eccentricity and Fractional Flow Reserve and Coronary Flow Reserve in Coronary Arteries, *Advances in Bio-Mechanical Systems and Materials*, Springer, Cham, 1-6

Mustapha, S, Ye, L 2013, Damage Identification and Assessment in Tapered Sandwich Structures Using Guided Waves, *Structural Health Monitoring: Research and Applications*, Trans Tech Publications, Switzerland, 25-38

Mustapha, S, Ye, L 2013, Non-destructive evaluation (NDE) of composites: assessing debonding in sandwich panels using guided waves, *Non-destructive evaluation (NDE) of polymer matrix composites: Techniques and applications*, Woodhead Publishing Limited, Cambridge, United Kingdom, 238-278

Peynot, T, Fitch, R C, McAllister, R T, Alempijevic, A 2013, Resilient navigation through probabilistic modality reconfiguration, *Intelligent Autonomous Systems 12*, Springer, unknown, 75-88

Sun, G, Li, G, Stone, M, Li, Q 2013, Multi-Fidelity Optimization Procedure for Honeycomb-Type Cellular Materials, *Structural Analysis and Modelling: Research and Development*, Nova Science Publishers, Inc, New York, United States of America, 1, 239-265

Thompson, P R, Nettleton, E W, Durrant-Whyte, H F 2013, Decentralized Data Fusion: Formulation and Algorithms, *Distributed Data Fusion for Network-Centric Operations*, CRC Press, Boca Raton, 161-197

Velonaki, M, Rye, D C 2013, Art and Robotics - A Brief Account of Eleven Years of Cross-disciplinary Invention, *Ecologies of Invention*, Sydney University Press, Sydney, Australia, 2013, 55-68

Conference Publications

Abdel-Raheem, M, Ibrahim, S, Malalasekera, W, Masri, A R 2013, *Eighth Mediterranean Combustion Symposium (MCS-8)*, International Centre for Heat and Mass Transfer, Izmir, Turkey, 1-8

Agamennoni, G, Nebot, E M 2013, *16th International Conference on Information Fusion*, International Society on Information Fusion - ISIF, Istanbul, 1044-1050

Agamennoni, G, Ward, J R, Worrall, S J, Nebot, E M 2013, *2013 IEEE Intelligent Vehicles Symposium Workshop*, IEEE, Gold Coast, Queensland, Australia, 25-30

Agamennoni, G, Worrall, S J, Ward, J R, Nebot, E M 2013, *2013 IEEE Intelligent Vehicles Symposium (IV 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Gold Coast, Australia, 156-162

Ahtiainen, J, Peynot, T, Saarinen, J, Scheding, S J 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 5148-5155

Alempijevic, A, Fitch, R C, Kirchner, N 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 1234-1239

Al-Harbi, A, Masri, A R, Ibrahim, S 2013, *Eighth Mediterranean Combustion Symposium (MCS-8)*, International Centre for Heat and Mass Transfer, Izmir, Turkey, 1-12

Badra, J, Masri, A R, Farooq, A 2013, *9th Asia-Pacific Conference on Combustion (ASPACC)*, The Korean Society of Combustion, Gyeongju, Korea

Ball, D, Ross, P, English, A, Patten, T M, Upcroft, B, Fitch, R C, Sukkarieh, S, Wyeth, G, Corke, P 2013, *9th Conference on Field and Service Robotics (FSR)*, Australian Robotics and Automation Association (ARAA), Brisbane, Australia, 1-14

Bargoti, S, Mahajan, AM, Goktogan, A H 2013, *2012 Australian Space Science Conference*, National Space Society of Australia Ltd, Melbourne, 315-326

Bargoti, S, Underwood, J P, Nieto, J I, Sukkarieh, S 2013, *9th Conference on Field and Service Robotics (FSR)*, Australian Robotics and Automation Association (ARAA), Brisbane, Australia, 1-14

Bender, A, Williams, S B, Pizarro, O R 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 390-396

Bender, A, Williams, S B, Pizarro, O R 2013, *Robotics Science and Systems, Workshops*, Robotics Science and Systems, online, 1-8

Bewley, M, Nourani-Vatani, N, Rao, D, Douillard, B, Pizarro, O R, Williams, S B 2013, *9th Conference on Field and Service Robotics (FSR)*, Australian Robotics and Automation Association (ARAA), Brisbane, Australia, 1-14

Bodisco, T, Pham, P. X., Islam, M, Brown, R, Masri, A R, Bockhorn, H 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 320-323

Bongiorno, D, Bryson, M T, Dansereau, D G, Williams, S B 2013, *SPIE Digital Photography IX*, SPIE - International Society for Optical Engineering, USA, 8660

Bongiorno, D, Bryson, M T, Williams, S B 2013, *OCEANS'13 MTS/IEEE Conference*, IEEE, unknown, 1-9

Bongiorno, D, Fairley, A, Bryson, M T, Williams, S B 2013, *2013 IEEE International Geoscience & Remote Sensing Symposium*, IEEE, unknown, 4431-4434

Brunner, C J, Peynot, T, Underwood, J P 2013, *Australasian Conference on Robotics and Automation 2013*, Australian Robotics and Automation Association (ARAA), Sydney, 1-9

Bryson, M T, Johnson-Roberson, M, Pizarro, O R, Williams, S B 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 3344-3349

Ceguerra, A V, Liddicoat, P. V., Ringer, S P, Goscinski, W, Androulakis, S 2013, *13th IEEE International Conference on Computer and Information Technology (CIT2013)*, IEEE Computer Society, Sydney, Australia, 561-565

Chen, J, Chen, L, Li, W, Swain, M V, Li, Q 2013, *8th Pacific Rim International Congress on Advanced Materials and Processing (PRICM 8)*, John Wiley & Sons, Inc., Hoboken, United States, 1579-1586

Chlingaryan, A, Melkumyan, A, Murphy, R J, Schneider, S 2013, *36th APCOM Applications of Computers and Operations Research in the Mineral Industry*, Fundacao Luiz Englert, Porto Alegre, Brazil, 42-50

Chung, J, Lawrance, N R J, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 2633-2639

Chung, J, Lawrance, N R J, Sukkarieh, S 2013, *Robotics Science and Systems, Workshops*, Robotics Science and Systems, online, 1-6

Clarke, BR, Worrall, S J, Brooker, G M, Nebot, E M 2013, *2013 IEEE Intelligent Vehicles Symposium Workshop*, IEEE, Gold Coast, Queensland, Australia, 147-152

Cliff, O, Monteiro, S T 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 704-709

Cobano, J, Alejo, D, Sukkarieh, S, Heredia, G, Ollero, A 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 2948-2954

Dansereau, D G, Bongiorno, D, Pizarro, O R, Williams, S B 2013, *SPIE Computational Imaging XI*, SPIE - International Society for Optical Engineering, USA, 8657

Dansereau, D G, Pizarro, O R, Williams, S B 2013, *2013 26th IEEE Conference on Computer Vision and Pattern Recognition*, IEEE, Piscataway, New Jersey, 1027-1034

De Deuge, M, Quadros, A, Hung, C, Douillard, B 2013, *Australasian Conference on Robotics and Automation 2013*, Australian Robotics and Automation Association (ARAA), Sydney, 1-9

Dialameh, L, Cleary, M J, Klimenko, A 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 158-161

Gerardo Castro, M, Peynot, T, Ramos, F T 2013, *9th Conference on Field and Service Robotics (FSR)*, Australian Robotics and Automation Association (ARAA), Brisbane, Australia, 1-14

Gibson, C, Aghaeimeybodi, M, Behnia, M 2013, *ASME 2013 International Mechanical Engineering Congress and Exposition (IMECE2013)*, American Society of Mechanical Engineers (ASME), San Diego, United States, 1-6

Guizilini, V C, Ramos, F T 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 4705-4712

Hemakumara, P, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 5382-5388

Ho, K, Peynot, T, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 3460-3467

Ho, K, Peynot, T, Sukkarieh, S 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 2827-2833

Hung, C, Nieto, J I, Taylor, Z, Underwood, J P, Sukkarieh, S 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 5314-5320

Hung, C, Sukkarieh, S 2013, *12th Queensland Weed Symposium*, Unknown, Queensland, 64-67

Hung, C, Underwood, J P, Nieto, J I, Sukkarieh, S 2013, *9th Conference on Field and Service Robotics (FSR)*, Australian Robotics and Automation Association (ARAA), Brisbane, Australia, 1-14

Islam, M S, Tong, L, Falzon, P 2013, *22nd Australasian Conference on the Mechanics of Structures and Materials*, CRC Press/Balkema, Leiden, 1, 667-672

Jagbrant, G, Underwood, J P, Nieto, J I, Sukkarieh, S 2013, *9th Conference on Field and Service Robotics (FSR)*, Australian Robotics and Automation Association (ARAA), Brisbane, Australia, 1-14

Jahirul, M, Senadeera, W, Brooks, P, Brown, R, Situ, R, Pham, P. X., Masri, A R 2013, *20th International Congress on Modelling and Simulation (MODSIM2013)*, Modelling and Simulation Society of Australia and New Zealand Inc (MSSANZ), Adelaide, Australia, 1561-1567

Jasinski, T, Antipov, I, Monteiro, S T, Brooker, G M 2013, *2013 International Conference on Radar - Beyond Orthodoxy: New Paradigms in Radar (RADAR 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, NJ, 356-361

Jo, J, Choi, I, Lee, K, Park, J, Masri, A R 2013, *9th Asia-Pacific Conference on Combustion (ASPACC)*, The Korean Society of Combustion, Gyeongju, Korea, 1-4

Johnson-Roberson, M, Bryson, M T, Douillard, B, Pizarro, O R, Williams, S B 2013, *2013 Fourth International Conference on Computing for Geospatial Research and Application (COM.Geo 2013)*, IEEE Xplore, San Jose, United States, 8-15

Juddoo, M, Kourmatzis, A, Masri, A R 2013, *9th Asia-Pacific Conference on Combustion (ASPACC)*, The Korean Society of Combustion, Gyeongju, Korea, 1

Karumanchi, S, Iagnemma, K, Scheding, S J 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 397-402

Kourmatzis, A, Masri, A R 2013, *9th Asia-Pacific Conference on Combustion (ASPACC)*, The Korean Society of Combustion, Gyeongju, Korea, 1-4

Kourmatzis, A, Masri, A R 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 412-415

Kourmatzis, A, Pham, P. X., Masri, A R, Pandey, P 2013, *Eighth Mediterranean Combustion Symposium (MCS-8)*, International Centre for Heat and Mass Transfer, Izmir, Turkey, 1-12

Kuo, V C, Fitch, R C 2013, *2013 IEEE Intelligent Vehicles Symposium Workshop*, IEEE, Gold Coast, Queensland, Australia, 128-133

Lee, SH, Monteiro, S T, Scheding, S J 2013, *5th Workshop on Hyperstectral Image and Signal Processing Evolution in Remote Sensing, Whispers 2013*, IEEE, Piscataway, New Jersey, 1-4

Mahajan, AM, Vasudevan, S, Calleija, MS, Scheding, S J 2013, *2013 IEEE International Conference on Computer Science and Automation Engineering (CSAE2013)*, IEEE, Piscataway, New Jersey, USA, 1-5

Manchester, IR, Slotine, J 2013, *52nd IEEE Conference on Decision and Control*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, NJ, USA, 5909-5914

McCalman, L, O'Callaghan, S T, Ramos, F T 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 2830-2837

Meares, S, Juddoo, M, Masri, A R 2013, *9th Asia-Pacific Conference on Combustion (ASPACC)*, The Korean Society of Combustion, Gyeongju, Korea

Meares, S, Juddoo, M, Masri, A R 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 259-262

Medwell, P, Pham, P. X., Masri, A R 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 279-282

Mikl, J 2013, *31st International Conference on Biomechanics in Sports*, International Society of Biomechanics in Sports, Taipei, Taiwan, 1-5

Monteiro, S T, Nieto, J I, Murphy, R J, Ramakrishnan, R, Taylor, Z 2013, *2013 IEEE International Geoscience & Remote Sensing Symposium*, IEEE, unknown, 1210-1213

Morton, P, Douillard, B, Underwood, J P 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 4727-4733

Murphy, R J, Chlingaryan, A, Melkumyan, A 2013, *36th APCOM Applications of Computers and Operations Research in the Mineral Industry*, Fundacao Luiz Englert, Porto Alegre, Brazil, 51-61

Nguyen, J, Lawrance, N R J, Fitch, R C, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 3810-3816

Nourani-Vatani, N, De Deuge, M, Douillard, B, Williams, S B 2013, *14th IEEE International Conference on Computer Vision Workshops 2013*, IEEE, Sydney, Australia, 831-837

Palmer, AW, Hill, A, Scheding, S J 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 3324-3331

Patten, T M, Fitch, R C, Sukkarieh, S 2013, *Australasian Conference on Robotics and Automation 2013*, Australian Robotics and Automation Association (ARAA), Sydney, 1-9

Pham, P. X., Kourmatzis, A, Masri, A R 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 392-395

Pizarro, O R, Williams, S B, Jakuba, M, Johnson-Roberson, M, Mahon, I J, Bryson, M T, Steinberg, D, Friedman, A, Dansereau, D G, Nourani-Vatani, N, Bongiorno, D, Bewley, M, Bender, A, Ashan, N, Douillard, B 2013, *2013 IEEE International Underwater Technology Symposium (UT 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Tokyo, 1-10

Prasad, V. N., Kourmatzis, A, Masri, A R, Luo, K, Ng, J 2013, *Eighth Mediterranean Combustion Symposium (MCS-8)*, International Centre for Heat and Mass Transfer, Izmir, Turkey, 1-12

Prasad, V. N., Meares, S, Masri, A R 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 275-278

Ramakrishnan, R, Nieto, J I, Scheding, S J 2013, *14th IEEE International Conference on Computer Vision Workshops 2013*, IEEE, Sydney, Australia, 907-914

Reid, A S, Ramos, F T, Sukkarieh, S 2013, *Robotics: Science and Systems IX*, Robotics: Science and Systems, Berlin, Germany, 1-8

Romero Cano, VRC, Nieto, J I 2013, *2013 IEEE Intelligent Vehicles Symposium (IV 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Gold Coast, Australia, 499

Romero Cano, VRC, Nieto, J I, Agamennoni, G 2013, *2013 IEEE Intelligent Vehicles Symposium Workshop*, IEEE, Gold Coast, Queensland, Australia, 111-115

Roozing, W, Goktogan, A H 2013, *2013 IEEE/ASME International Conference onAdvanced Intelligent Mechatronics (AIM 2013)*, IEEE, Piscataway, 1003-1009

Sayama, S, Dunn, M J 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 312-315

Shabana, Y, Wang, G 2013, *The Second Asian Conference on Mechanics of Functional Materials and Structures*, Springer, Vienna, 224(6), 1213-1224

Steinberg, D, Pizarro, O R, Williams, S B 2013, *2013 IEEE International Conference on Computer Vision (ICCV)*, IEEE, Sydney, Australia, 3463-3470

Sun, X, Wu, X 2013, *2013 IEEE International Conference on Mechatronics and Automation (ICMA 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Japan, 425-430

Sundaram, B, Klimenko, A, Cleary, M J, Maas, U 2013, *The Australian Combustion Symposium 2013 (ACS 2013)*, The Combustion Institute, Perth, Australia, 356-359

Tahir (nee Mariam), N, Brooker, G M 2013, *2013 IEEE Topical Conference on Wireless Sensors and Sensor Networks (WiSNet)*, IEEE, Austin, Texas, USA, 22-24

Taylor, Z, Nieto, J I, Johnson, D G 2013, *2013 IEEE/RSJ International Conference onIntelligent Robots and Systems*, IEEE, Tokyo, Japan, 1, 1293-1300

Tobenkin, M, Manchester, IR, Megretski, A 2013, *1st American Control Conference (ACC 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, NJ, 3936-3941

Umenberger, J, Goktogan, A H 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 2955-2961

Umenberger, J, Goktogan, A H 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 2955-2961

Underwood, J P, Gillsjo, D, Bailey, T A, Vlaskine, V 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 4720-4726

Wang, HJ, Chang, L, Ye, L, Williams, J G 2013, *13th International Congress on Fracture (ICF13)*, Chinese Society of Theoretical and Applied Mechanics, Beijing, China, 1-6

Ward, J R, Worrall, S J, Agamennoni, G, Nebot, E M 2013, *16th International IEEE Annual Conference onIntelligent Transportation Systems (ITSC 2013)*, IEEE, The Hague, The Netherlands, 658-663

Ward, J R, Worrall, S J, Agamennoni, G, Nebot, E M 2013, *2013 IEEE Intelligent Vehicles Symposium Workshop*, IEEE, Gold Coast, Queensland, Australia, 19-24

Wilson, D, Trujillo Soto, M, Goktogan, A H, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 3926-3931

Woolsey, E, Byrne, M, Webster, J M, Williams, S B, Pizarro, O R, Thornborough, K J, Davies, P J, Beaman, R, Bridge, T 2013, *Echinoderms in a Changing World: 13th International Echinoderm Conference*, CRC Press/Balkema, Leiden, The Netherlands, 175-179

Worrall, S J, Agamennoni, G, Ward, J R, Nebot, E M 2013, *2013 IEEE Intelligent Vehicles Symposium (IV 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Gold Coast, Australia, 13, 298-303

Xu, Z, Fitch, R C, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 2006-2012

Yang, C, Mai, Y 2013, *8th Pacific Rim International Congress on Advanced Materials and Processing (PRICM 8)*, John Wiley & Sons, Inc., Hoboken, United States, 2833-2838

Yao, Y, Lu, D, Verstraete, D 2013, *IEEE International Future Energy Electronics Conference (IFEEC 2013)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, NJ, USA, 849-854

Yoo, C, Fitch, R C, Sukkarieh, S 2013, *2013 IEEE International Conference on Robotics and Automation (ICRA)*, (IEEE) Institute of Electrical and Electronics Engineers, Piscataway, 973-978

Zhang, J, Deng, S, Ye, L, Zhang, Z 2013, *13th International Congress on Fracture (ICF13)*, Chinese Society of Theoretical and Applied Mechanics, Beijing, China, 1-7

Journal Articles

Aghaeimeybodi, M, Behnia, M 2013, Australian coal mine methane emissions mitigation potential using a Stirling engine-based CHP system, *Energy Policy*, 62, 10-18

Ahmad, R, Abu-Hassan, M, Li, Q, Swain, M V 2013, Three dimensional quantification of mandibular bone remodeling using standard tessellation language registration based superimposition, *Clinical Oral Implants Research*, 24(11), 1273-1279

Al-Waked, R, Nasif, M, Morrison, G, Behnia, M 2013, CFD simulation of air to air enthalpy heat exchanger, *Energy Conversion and Management*, 74, 377-385

Amoozgar, M, Irani, S, Vio, G 2013, Aeroelastic instability of a composite wing with a powered-engine, *Journal of Fluids and Structures*, 36, 70-82

Awaja, F, Zhang, S, McKenzie, D R 2013, Autohesion of semi-crystalline PEEK near and under the glass transition temperature, *Applied Surface Science*, 282, 571-577

Awaja, F, Zhang, S, McKenzie, D R 2013, Sticky nano-thin films for the adhesion of polymers, *Applied Surface Science*, 285(Part B), 893-899

Badra, J A, Masri, A R, Behnia, M 2013, Enhanced Transient Heat Transfer From Arrays of Jets Impinging on a Moving Plate, *Heat Transfer Engineering*, 34(4), 361-371

Badra, J A, Masri, A R, Zhou, C R, Haynes, B S 2013, A comparative experimental study of the interactions between platinum and a range of hydrocarbon fuels, *Fuel*, 105(March), 523-534

Badra, J A, Masri, A R, Zhou, C R, Haynes, B S 2013, An experimental and numerical study of surface chemical interactions in the combustion of propylene over platinum, *Combustion and Flame*, 160(2), 473-485

Badra, J, Masri, A R, Farooq, A 2013, A sensitivity study of the oxidation of compressed natural gas on platinum, *Fuel*, 113, 467-480

Baji, A, Mai, Y, Abtahi, M, Wong, S, Liu, Y, Li, Q 2013, Microstructure development in electrospun carbon nanotube reinforced polyvinylidene fluoride fibers and its influence on tensile strength and dielectric permittivity, *Composites Science and Technology*, 88, 1-8

Bao, P., Li, W, Yeoh, W K, Cui, X Y, Kim, J, Kang, Y, Yang, W, Dou, S, Ringer, S P, Zheng, R 2013, Magnetotransport dependence on the field magnitude and direction in large area epitaxial graphene film on stretchable substrates, *Applied Physics Letters*, 102(9), 1-5

Behnia, M, Powell, S, Fallen, L, Tamaddon, H, Behnia, M 2013, Correlation of Stroke Volume Measurement between Sonosite Portable Echocardiogram and Edwards Flotrac Sensor-Vigileo Monitor in an Intensive Care Unit, *Clinical Medicine Insights: Circulatory, Respiratory and Pulmonary Medicine*, 7, 45-51

Bird, G A 2013, Comment on Direct simulation Monte Carlo method for an arbitrary intermolecular potential" [Phys. Fluids 24, 011703 (2012)], *Physics of Fluids*, 25(4), 1-3

Blackman, B, Hoult, T, Patel, Y, Williams, J G 2013, Tool sharpness as a factor in machining tests to determine toughness, *Engineering Fracture Mechanics*, 101, 47-58

Breen, A.J., Moody, M, Gault, B, Ceguerra, A V, Xie, K, Du, SC, Ringer, S P 2013, Spatial decomposition of molecular ions within 3D atom probe reconstructions, *Ultramicroscopy*, 132, 92-99

Brooker, G M, Gomez, J 2013, Lev Termens great seal bug analyzed, *IEEE Aerospace and Electronic Systems Magazine*, November 2013, 4-11

Brunner, C J, Peynot, T, Vidal-Calleja, T, Underwood, J P 2013, Selective Combination of Visual and Thermal Imaging for Resilient Localization in Adverse Conditions: Day and Night, Smoke and Fire, *Journal of Field Robotics*, 30(4), 641-666

Bryson, M T, Johnson-Roberson, M, Murphy, R J, Bongiorno, D 2013, Kite aerial photography for low-cost, ultra-high spatial resolution multi-spectral mapping of intertidal landscapes, *PLoS One*, 8(9), 1-15

Cadman, J E, Chang, C C, Chen, J, Chen, Y, Zhou, S, Li, W, Li, Q 2013, Bioinspired lightweight cellular materials - Understanding effects of natural variation on mechanical properties, *Materials Science and Engineering C: Materials for Biological Applications*, 33(6), 3146-3152

Cadman, J E, Zhou, S, Chen, Y, Li, Q 2013, On design of multi-functional microstructural materials, *Journal of Materials Science*, 48(1), 51-66

Cameron, E, Chen, T, Connor, D, Behnia, M, Parsi, K 2013, Sclerosant foam structure and stability is strongly influenced by liquid air fraction, *European Journal of Vascular and Endovascular Surgery*, 46(4), 488-494

Cao, Y, Wang, Y, Chen, Z. -B., Liao, X, Kawasaki, M, Ringer, S P, Langdon, T, Zhu, Y 2013, De-twinning via secondary twinning in face-centered cubic alloys, *Materials Science and Engineering A: Structural Materials: Properties, Microstructures and Processing*, 578, 110-114

Ceguerra, A V, Breen, A.J., Stephenson, L T, Felfer, P J, Araullo-Peters, V J, Liddicoat, P. V., Cui, X Y, Yao, L, Haley, D, Moody, M, Gault, B, Cairney, J M, Ringer, S P 2013, The rise of computational techniques in atom probe microscopy, *Current Opinion in Solid State and Materials Science*, 17(5), 224-235

Chen, B, Gao, Q, Chang, L, Wang, Y, Chen, Z. -B., Liao, X, Tan, H, Zou, J, Ringer, S P, Jagadish, C 2013, Attraction of semiconductor nanowires: An in situ observation, *Acta Materialia*, 61(19), 7166-7172

Chen, B, Gao, Q, Wang, Y, Liao, X, Mai, Y, Tan, H, Zou, J, Ringer, S P, Jagadish, C 2013, Anelastic behavior in GaAs semiconductor nanowires, *Nano Letters: a journal dedicated to nanoscience and nanotechnology*, 13(7), 3169-3172

Chen, B, Wang, J, Gao, Q, Chen, Y, Liao, X, Lu, C, Tan, H, Mai, Y, Zou, J, Ringer, S P, Gao, H, Jagadish, C 2013, Strengthening Brittle Semiconductor Nanowires through Stacking Faults: Insights from in Situ Mechanical Testing, *Nano Letters: a journal dedicated to nanoscience and nanotechnology*, 13(9), 4369-4373

Chen, J, Rungsiyakull, C, Li, W, Chen, Y, Swain, M V, Li, Q 2013, Multiscale design of surface morphological gradient for osseointegration, *Journal of the Mechanical Behavior of Biomedical Materials*, 20, 387-397

Chen, Q J, Kanhere, S, Hassan, M 2013, Adaptive position update for geographic routing in mobile ad hoc networks, *IEEE Transactions on Mobile Computing*, 12(3), 489-501

Chen, Y, Li, X, Park, K, Song, J, Hong, J, Zhou,, L, Mai, Y, Huang, H, Goodenough, J 2013, Hollow Carbon-Nanotube/Carbon-Nanofiber Hybrid Anodes for Li-ion Batteries, *Journal of the American Chemical Society*, 135(44), 16280-16283

Chen, Z. -B., Lei, W, Chen, B, Wang, Y, Liao, X, Tan, H, Zou, J, Ringer, S P, Jagadish, C 2013, Preferential nucleation and growth of InAs/GaAs(0 0 1) quantum dots on defected sites by droplet epitaxy, *Scripta Materialia*, 69(8), 638-641

Chrigui, M, Gounder, J D, Sadiki, A, Janicka, J, Masri, A R 2013, Acetone Droplet Behavior in Reacting and Non Reacting Turbulent Flow, *Flow, Turbulence and Combustion*, 90(2), 419-447

Chrigui, M, Masri, A R, Sadiki, A, Janicka, J 2013, Large Eddy Simulation of a Polydisperse Ethanol Spray Flame, *Flow, Turbulence and Combustion*, 90(4), 813-832

Cui, X Y, Li, L., Zheng, R, Liu, Z, Stampfl, C, Ringer, S P 2013, Graphene based dots and antidots: a comparative study from first principles, *Journal of Nanoscience and Nanotechnology*, 13(2), 1251-1255

Dai, S C, Bertevas, E L, Qi, F, Tanner, R I 2013, Viscometric functions for noncolloidal sphere suspensions with Newtonian matrices, *Journal of Rheology*, 57(2), 493-510

Dansereau, D G, Brock, N, Cooperstock, J 2013, Predicting an Orchestral Conductors Baton Movements Using Machine Learning, *Computer Music Journal*, 37(2), 28-45

Dasari, A, Yu, Z, Cai, G, Mai, Y 2013, Recent developments in the fire retardancy of polymeric materials, *Progress in Polymer Science*, 38(9), 1357-1387

Deng, S, Beehag, A, Hillier, W, Zhang, D, Ye, L 2013, Kenafpolypropylene composites manufactured from blended fiber mats, *Journal of Reinforced Plastics and Composites*, 32(16), 1198-1210

Dittko, K A, Kirkpatrick, M P, Armfield, S W 2013, Large Eddy Simulation of complex sidearms subject to solar radiation and surface cooling, *Water Research*, 47(14), 4918-4927

Dittko, K A, Kirkpatrick, M P, Armfield, S W 2013, Three-dimensional simulation of natural convection in a reservoir sidearm, *Physics of Fluids*, 25(2), 025105-1-025105-26

Douillard, B, Nourani-Vatani, N, Johnson-Roberson, M, Pizarro, O R, Williams, S B, Roman, C, Vaughn, J 2013, Frequency-based underwater terrain segmentation, *Autonomous Robots*, 35(4), 255-269

Du, SC, Burgess, T, Gault, B, Gao, Q, Bao, P., Li, L., Cui, X Y, Yeoh, W K, Liu, H., Yao, L L, Ceguerra, A V, Tan, H, Jagadish, C, Ringer, S P, Zheng, R 2013, Quantitative dopant distributions in GaAs nanowires using atom probe tomography, *Ultramicroscopy*, 132, 186-192

Du, SC, Burgess, T, Loi, S.T., Gault, B, Gao, Q, Bao, P., Li, L., Cui, X Y, Yeoh, W K, Tan, H, Jagadish, C, Ringer, S P, Zheng, R 2013, Full tip imaging in atom probe tomography, *Ultramicroscopy*, 124, 96-101

Du, X S, Zhou, C, Liu, H Y, Mai, Y, Wang, G 2013, Facile chemical synthesis of nitrogen-doped graphene sheets and their electrochemical capacitance, *Journal of Power Sources*, 241, 460-466

Duwig, C, Dunn, M J 2013, Large Eddy Simulation of a premixed jet flame stabilized by a vitiated co-flow: Evaluation of auto-ignition tabulated chemistry, *Combustion and Flame*, 160(12), 2879-2895

Ehsani, N, Ruys, A J, Sorrell, C 2013, Hot Isostatic Pressing (HIPing) of FeCralloy-reinforced Hydroxyapatite, *Journal of Biomimetics, Biomaterials, and Tissue Engineering*, 17, 87-102

El Sayed, K, Marzahn, U, John, T, Hoyer, M, Zreiqat, H, Witthuhn, A, Kohl, B, Haisch, A, Schulze-Tanzil, G 2013, PGA-associated heterotopic chondrocyte cocultures: implications of nasoseptal and auricular chondrocytes in articular cartilage repair, *Journal of Tissue Engineering and Regenerative Medicine*, 7(1), 61-72

Fair, K. M., Cui, X Y, Li, L., Shieh, C C, Zheng, R, Liu, Z, Delley, B, Ford, M, Ringer, S P, Stampfl, C 2013, Hydrogen adsorption capacity of adatoms on double carbon vacancies of graphene: A trend study from first principles, *Physical Review B (Condensed Matter and Materials Physics)*, 87(1), 1-7

Fakhim, B, Nagarathinam, N, Behnia, M, Armfield, S W 2013, Thermal performance of data centers-rack level Analysis, *IEEE Transactions on Components, Packaging and Manufacturing Technology*, 3(5), 792-799

Fang, J, Gao, Y, Sun, G, Li, Q 2013, Multiobjective reliability-based optimization for design of a vehicle door, *Finite Elements in Analysis and Design*, 67, 13-21

Felfer, P J, Ceguerra, A V, Ringer, S P, Cairney, J M 2013, Applying computational geometry techniques for advanced feature analysis in atom probe data, *Ultramicroscopy*, 132, 100-106

Ferrara, T, Boughton, P C, Slavich, E, Wroe, S 2013, A Novel Method for Single Sample Multi-Axial Nanoindentation of Hydrated Heterogeneous Tissues Based on Testing Great White Shark Jaws, *PLoS One*, 8(11), 1-8

Fu, K, Yin, Y, Chang, L, Shou, D, Zheng, B, Ye, L 2013, Analysis on multiple ring-like cracks in thin amorphous carbon film on soft substrate under nanoindentation, *Journal of Physics D: Applied Physics*, 46(50), 1-10

Gasnier, V, Gault, B, Nako, H, Aruga, Y, Sha, G, Ringer, S P 2013, Influence of experimental parameters on the composition of precipitates in metallic alloys, *Ultramicroscopy*, 132, 199-204

Gault, B, Felfer, P J, Ivermark, M, Bergqvist, H, Cairney, J M, Ringer, S P 2013, Atom probe microscopy characterization of as quenched Zr-0.8 wt% Fe and Zr-0.15 wt% Cr binary alloys, *Materials Letters*, 91, 63-66

Ge, Y, Cleary, M J, Klimenko, A 2013, A comparative study of Sandia flame series (D-F) using sparse-Lagrangian MMC modelling, *Proceedings of the Combustion Institute*, 34(1), 1325-1332

Gibson, C, Aghaeimeybodi, M, Behnia, M 2013, Optimisation and selection of a steam turbine for a large scale industrial CHP (combined heat and power) system under Australia's carbon price, *Energy*, 61, 291-307

Gu, X, Sun, G, Li, G, Huang, X, Li, Y, Li, Q 2013, Multiobjective optimization design for vehicle occupant restraint system under frontal impact, *Structural and Multidisciplinary Optimization*, 47(3), 465-477

Gu, X, Sun, G, Li, G, Mao, L, Li, Q 2013, A Comparative study on multiobjective reliable and robust optimization for crashworthiness design of vehicle structure, *Structural and Multidisciplinary Optimization*, 48(3), 669-684

Guizilini, V C, Ramos, F T 2013, Semi-parametric learning for visual odometry, *International Journal of Robotics Research*, 32(5), 526-546

Guo, D, Li, J, Chang, L, Luo, J 2013, Measurement of the friction between single polystyrene nanospheres and silicon surface using atomic force microscopy, *Langmuir*, 29(23), 6920-6925

Guo, Q, Chang, L, Ye, L, Wang, Y, Feng, H, Cao, Y, Lian, Q, Li, Y 2013, Residual Stress, Nanohardness, and Microstructure Changes in Whirlwind Milling of GCr15 Steel, *Materials and Manufacturing Processes*, 28(10), 1047-1052

Hattori, T, Bartos, N.P, Norris, S, Kirkpatrick, M P, Armfield, S W 2013, Experimental and numerical investigation of unsteady behaviour in the near-field of pure thermal planar plumes, *Experimental Thermal and Fluid Science*, 46, 139-150

Hattori, T, Norris, S, Kirkpatrick, M P, Armfield, S W 2013, Comparison of non-reflective boundary conditions for a free-rising turbulent axisymmetric plume, *International Journal for Numerical Methods in Fluids*, 72(12), 1307-1320

Hattori, T, Norris, S, Kirkpatrick, M P, Armfield, S W 2013, Prandtl number dependence and instability mechanism of the near-field flow in a planar thermal plume, *Journal of Fluid Mechanics*, 732, 105-127

Hattori, T, Norris, S, Kirkpatrick, M P, Armfield, S W 2013, Simulation and analysis of puffing instability in the near field of pure thermal planar plumes, *International Journal of Thermal Sciences*, 69, 1-13

Hemakumara, P, Sukkarieh, S 2013, Learning UAV Stability and Control Derivatives Using Gaussian Processes, *IEEE Transactions on Robotics*, 29(4), 813-824

Henderson, J, Pizarro, O R, Johnson-Roberson, M, Mahon, I J 2013, Mapping submerged archaeological sites using stereo-vision photogrammetry, *International Journal of Nautical Archaeology*, 42(2), 243-256

Heye, C, Raman, V, Masri, A R 2013, LES/probability density function approach for the simulation of an ethanol spray flame, *Proceedings of the Combustion Institute*, 34(1), 1633-1641

Hou, S, Zhao, S, Ren, L, Han, X, Li, Q 2013, Crashworthiness optimization of corrugated sandwich panels, *Materials and Design*, 51, 1071-1084

Huang, X, Zhou, S, Xie, Y, Li, Q 2013, Topology optimization of microstructures of cellular materials and composites for macrostructures, *Computational Materials Science*, 67, 397-407

Ibuki, R, Behnia, M 2013, Optimization of air flow circulation with branching perforating duct and fan system, *Acta Horticulturae*, 1008, 241-248

Jabbarzadeh-Khoei, A 2013, Effect of nano-patterning on oleophobic properties of a surface, *Soft Matter*, 9, 11598-11608

Jackson, A C, Murphy, R J, Underwood, A J 2013, Biofilms on rocky shores: Influences of rockpools, local moisture and temperature, *Journal of Experimental Marine Biology and Ecology*, 443, 46-55

Javadzadegan, A, Shimizu, Y, Behnia, M, Ohta, M 2013, Correlation between Reynolds number and eccentricity effect in stenosed artery models, *Technology and Health Care*, 21(4), 357-367

Kelly, T, Miller, M, Rajan, K, Ringer, S P 2013, Atomic-Scale tomography: A 2020 vision, *Microscopy and Microanalysis*, 19(3), 652-664

Kostryzhev, A, Shahrani, A, Zhu, C., Ringer, S P, Pereloma, E 2013, Effect of austenitising and deformation temperatures on dynamic recrystallisation in Nb-Ti microalloyed steel, *Materials Science Forum*, 753, 431-434

Kostryzhev, A, Shahrani, A, Zhu, C., Ringer, S P, Pereloma, E 2013, Effect of deformation temperature on niobium clustering, precipitation and austenite recrystallisation in a Nb-Ti microalloyed steel, *Materials Science and Engineering A: Structural Materials: Properties, Microstructures and Processing*, 581, 16-25

Kourmatzis, A, O'Loughlin, W, Masri, A R 2013, Effects of turbulence, evaporation and heat release on the dispersion of droplets in dilute spray jets and flames, *Flow, Turbulence and Combustion*, 91(2), 405-427

Kourmatzis, A, Pham, P. X., Masri, A R 2013, Air assisted atomization and spray density characterization of ethanol and a range of biodiesels, *Fuel*, 108, 758-770

Krogstad, J, Leckie, R, Kramer, S, Cairney, J M, Lipkin, D, Johnson, C, Levi, C 2013, Phase Evolution upon Aging of Air Plasma Sprayed t'-Zirconia Coatings: IIMicrostructure Evolution, *Journal of the American Ceramic Society*, 96(1), 299-307

Kuan, H, Dasari, A B, Yu, Z, Ma, J, Mai, Y, Ma, C 2013, Molecular Mobility and Mechanical Properties of Novel Clay/Waterborne Polyurethane Nanocomposites, *Advanced Science Letters*, 19(2), 524-528

Lei, H, Wang, Z, Tong, L, Tang, X 2013, Macroscopic Mechanical Characterization of SMAs Fiber-Reinforced Hybrid Composite Under Uniaxial Loading, *Journal of Materials Engineering and Performance*, 22(10), 3055-3062

Lei, H, Wang, Z, Tong, L, Zhou, B, Fu, J 2013, Experimental and numerical investigation on the macroscopic mechanical behavior of shape memory alloy hybrid composite with weak interface, *Composite Structures*, 101, 301-312

Li, C, Sha, G, Gun, B, Xia, J.H., Liu, X, Wu, Y, Birbilis, N, Ringer, S P 2013, Enhanced age-hardening response of Al-4Mg-1Cu (wt.%) microalloyed with Ag and Si, *Scripta Materialia*, 68(11), 857-860

Li, J, Gil, E, Hayden, R, Li, C, Roohani-Esfahani, S, Kaplan, D, Zreiqat, H 2013, Multiple Silk Coatings on Biphasic Calcium Phosphate Scaffolds: Effect on Physical and Mechanical Properties and In Vitro Osteogenic Response of Human Mesenchymal Stem Cells, *Biomacromolecules*, 14(7), 2179-2188

Lin, W, Armfield, S W 2013, Scalings for unsteady natural convection boundary layers on an evenly heated plate with time-dependent heating flux, *Physical Review E (Statistical, Nonlinear, and Soft Matter Physics)*, 88(6), 1-17

Liu, Q, Lin, Y, Zong, Z, Sun, G, Li, Q 2013, Lightweight design of carbon twill weave fabric composite body structure for electric vehicle, *Composite Structures*, 97, 231-238

Loi, S.T., Gault, B, Ringer, S P, Larson, D, Geiser, B 2013, Electrostatic simulations of a local electrode atom probe: The dependence of tomographic reconstruction parameters on specimen and microscope geometry, *Ultramicroscopy*, 132, 107-113

Lu, Y, Li, J, Ye, L, Wang, D 2013, Guided waves for damage detection in rebar-reinforced concrete beams, *Construction and Building Materials*, 47, 370-378

Lu, Y, Lu, M, Ye, L, Wang, D, Zhou,, L, Su, Z 2013, Lamb Wave Based Monitoring of Fatigue Crack Growth Using Principal Component Analysis, *Key Engineering Materials*, 558, 260-267

Lu, Z., Wang, G, Dunstan, C R, Chen, Y, Lu, W Y R, Davies, B, Zreiqat, H 2013, Activation and Promotion of Adipose Stem Cells by Tumour Necrosis Factor-Alpha Preconditioning for Bone Regeneration, *Journal of Cellular Physiology*, 228(8), 1737-1744

Luo, Q T, Tong, L 2013, Adaptive pressure-controlled cellular structures for shape morphing I: design and analysis, *Smart Materials and Structures*, 22(5), 1-16

Luo, Q T, Tong, L 2013, Adaptive pressure-controlled cellular structures for shape morphing: II. Numerical and experimental validation, *Smart Materials and Structures*, 22, 1-12

Lustig, S, Scholes, C, Oussedik, S, Tam, S, Dabirrahmani, D, Appleyard, R, Parker, D 2013, A comparison of the temperature rise generated in bone by the use of a standard oscillating saw blade and the "Precision" saw blade, *Journal of Medical Devices*, 7(2), 1-4

Madanayake, A, Wijenayake, C, Dansereau, D G, Gunaratne, T, Bruton, L, Williams, S B 2013, Multidimensional (MD) circuits and systems for emerging applications including cognitive radio, radio astronomy, robot vision and imaging, *IEEE Circuits and Systems Magazine*, 13(1), 10-43

Malalasekera, W, Ibrahim, S, Masri, A R, Gubba, S, Sadasivuni, S 2013, Experience with the large eddy simulation (LES) technique for the modeling of premixed and non-premixed combustion, *Heat Transfer Engineering*, 34(14), 1156-1170

Maleksaeedi, S, Wang, J, El-Hajje, A, Harb, L, Guneta, V, He, Z, Wiria, F, Choong, C, Ruys, A J 2013, Toward 3D printed bioactive titanium scaffolds with bimodal pore size distribution for bone ingrowth, *Procedia CIRP*, 5, 158-163

Marceau, R, de Vaucorbeil, A, Sha, G, Ringer, S P, Poole, W 2013, Analysis of strengthening in AA6111 during the early stages of aging: Atom probe tomography and yield stress modelling, *Acta Materialia*, 61(19), 7285-7303

Maruyama, S, Behnia, M, Chisaki, M, Kogawa, T, Okajima, J, Komiya, A 2013, Large eddy simulation of the diffusion process of nutrient-rich up-welled seawater, *Frontiers in Heat and Mass Transfer*, 4(2), 1-6

Mei, M, Fan, J, Shou, D 2013, The gravitational effect on the geometric profiles of droplets on horizontal fibers, *Soft Matter*, 9(43), 10324-10334

Mohammed, I, Charalambides, M, Williams, J G, Rasburn, J 2013, Modelling the deformation of a confectionery wafer as a non-uniform sandwich structure, *Journal of Materials Science*, 48(6), 2462-2478

Mohammed, M, Tarleton, E, Charalambides, M, Williams, J G 2013, Mechanical characterization and micromechanical modeling of bread dough, *Journal of Rheology*, 57(1), 249-272

Mukherjee, S, Timokhina, I, Zhu, C., Ringer, S P, Hodgson, P 2013, Three-dimensional atom probe microscopy study of interphase precipitation and nanoclusters in thermomechanically treated titanium-molybdenum steels, *Acta Materialia*, 61(7), 2521-2530

Murphy, R J, Monteiro, S T 2013, Mapping the distribution of ferric iron minerals on a vertical mine face using derivative analysis of hyperspectral imagery (430-970 nm), *ISPRS Journal of Photogrammetry and Remote Sensing*, 75, 29-39

Mustapha, S, Ye, L 2013, Damage identification and assessment in tapered sandwich structures using guided waves, *Key Engineering Materials*, 558, 25-38

Nagarathinam, N, Armfield, S W, Lin, W 2013, Behaviour of laminar plane fountains with a parabolic inlet velocity profile in a homogeneous fluid, *International Journal of Thermal Sciences*, 67, 87-95

Nagarathinam, N, Fakhim, B, Behnia, M, Armfield, S W 2013, A Comparison of Parametric and Multivariable Optimization Techniques in a Raised-Floor Data Center, *Journal of Electronic Packaging*, 135(3), 1-8

Nasif, M, Al-Waked, R, Behnia, M, Morrison, G 2013, Air to air fixed plate enthalpy heat exchanger, performance variation and energy analysis, *Journal of Mechanical Science and Technology*, 27(11), 3541-3551

Newman, P, Minett, A I, Ellis-Behnke, R, Zreiqat, H 2013, Carbon nanotubes: Their potential and pitfalls for bone tissue regeneration and engineering, *Nanomedicine: Nanotechnology, Biology, and Medicine*, 9(8), 1139-1158

Pham, P. X., Bodisco, T, Stevanovic, S, Rahman, M, Wang, H, Ristovski, Z, Brown, R, Masri, A R 2013, Engine Performance Characteristics for Biodiesels of Different Degrees of Saturation and Carbon Chain Lengths, *SAE International Journal of Fuels and Lubricants*, 6(1), 188-198

Pivonka, P, Buenzli, P, Scheiner, S, Hellmich, C, Dunstan, C R 2013, The influence of bone surface availability in bone remodelling-A mathematical model including coupled geometrical and biomechanical regulations of bone cells, *Engineering Structures*, 47, 134-147

Poon, C, Boughton, P C, Ruys, A J 2013, A Dynamic Perfusion Bioreactor Approach for Engineering Respiratory Tissues In-Vitro, *IEEE Engineering in Medicine and Biology Society. Conference Proceedings*, 2013, 6224-6227

Prasad, V. N., Juddoo, M, Masri, A R, Jones, W, Luo, K 2013, Investigation of extinction and re-ignition in piloted turbulent non-premixed methane-air flames using LES and high-speed OH-LIF, *Combustion Theory and Modelling*, 17(3), 483-503

Prasad, V. N., Masri, A R, Navarro-Martinez, S, Luo, K 2013, Investigation of auto-ignition in turbulent methanol spray flames using Large Eddy Simulation, *Combustion and Flame*, 160(12), 2941-2954

Qi, F, Dai, S C, Uthayakumaran, S, Tanner, R I 2013, Comparing compression and biaxial tests for bread dough, *Journal of Non-Newtonian Fluid Mechanics*, 198, 18-23

Qu, D, Liss, K, Sun, Y, Reid, M, Almer, J, Yan, K, Wang, Y, Liao, X, Shen, J 2013, Structural origins for the high plasticity of a Zr-Cu-Ni-Al bulk metallic glass, *Acta Materialia*, 61(1), 321-330

Ramin, L, Jabbarzadeh-Khoei, A 2013, Effect of Water on Structural and Frictional Properties of Self Assembled Monolayers, *Langmuir*, 29(44), 13367-13378

Ranga Dinesh, K, Luo, K, Kirkpatrick, M P, Malalasekera, W 2013, Burning syngas in a high swirl burner: Effects of fuel composition, *International Journal of Hydrogen Energy*, 38(21), 9028-9042

Rao, Y, Lei, y, Cui, X Y, Liu, Z, Chen, F 2013, Optical and magnetic properties of Cu-doped 13-atom Ag nanoclusters, *Journal of Alloys and Compounds*, 565, 50-55

Roman, C, Inglis, G, Vaughn, J, Smart, C, Dansereau, D G, Bongiorno, D, Johnson-Roberson, M, Bryson, M T 2013, New tools and methods for precision seafloor mapping, *Oceanography*, 26(1, supplement), 10-15

Roohani-Esfahani, S, Chen, Y, Shi, J X N, Zreiqat, H 2013, Fabrication and characterization of a new, strong and bioactive ceramic scaffold for bone regeneration, *Materials Letters*, 107, 378-381

Roohani-Esfahani, S, Dunstan, C R, Li, J, Lu, Z., Davies, B, Pearce, S, Field, J, Williams, R, Zreiqat, H 2013, Unique microstructural design of ceramic scaffolds for bone regeneration under load, *Acta Biomaterialia*, 9(6), 7014-7024

Samudrala, S K, Felfer, P J, Araullo-Peters, V J, Cao, Y, Liao, X, Cairney, J M 2013, New atom probe approaches to studying segregation in nanocrystalline materials, *Ultramicroscopy*, 132, 158-163

Sarrafpour, B, Swain, M V, Li, Q, Zoellner, H 2013, Tooth Eruption Results from Bone Remodelling Driven by Bite Forces Sensed by Soft Tissue Dental Follicles: A Finite Element Analysis, *PLoS One*, 8(3), 1-18

Shan, M, Worrall, S J, Nebot, E M 2013, Probabilistic Long-Term Vehicle Motion Prediction and Tracking in Large Environments, *IEEE Transactions on Intelligent Transportation Systems*, 14(2), 539-552

Shi, D, Liu, E, Tan, T, Shi, H, Jiang, T, Yang, Y, Luan, S, Yin, J, Mai, Y, Li, R 2013, Core/shell rubber toughened polyamide 6: an effective way to get good balance between toughness and yield strength, *RSC Advances*, 3(44), 21563-21569

Shimizu, Y, Javadzadegan, A, Hayase, T, Ohta, M 2013, Flow observations in elastic stenosis biomodel with comparison to rigid-like model, *Technology and Health Care*, 21(4), 305-314

Shou, D, Fan, J, Ding, F 2013, Effective diffusivity of gas diffusion layer in proton exchange membrane fuel cells, *Journal of Power Sources*, 225, 179-186

Shou, D, Tang, Y, Ye, L, Fan, J, Ding, F 2013, Effective permeability of gas diffusion layer in proton exchange membrane fuel cells, *International Journal of Hydrogen Energy*, 38(25), 10519-10526

Shou, D, Ye, L, Fan, J 2013, Heterogeneous porous structures for the fastest liquid absorption, *Proceedings of SPIE - International Society for Optical Engineering*, 8793, 1-10

Shou, D, Ye, L, Tang, Y, Fan, J, Ding, F 2013, Transverse permeability determination of dual-scale fibrous materials, *International Journal of Heat and Mass Transfer*, 58(1-2), 532-539

Shrestha, S.L., Xie, K, Ringer, S P, Carpenter, K, Smith, D, Killmore, C, Cairney, J M 2013, The effect of clustering on the mobility of dislocations during aging in Nb-microalloyed strip cast steels: In situ heating TEM observations, *Scripta Materialia*, 69(6), 481-484

Shrestha, S.L., Xie, K, Zhu, C., Ringer, S P, Killmore, C, Carpenter, K, Kaul, H, Williams, J, Cairney, J M 2013, Cluster strengthening of Nb-microalloyed ultra-thin cast strip steels produced by the CASTRIP R process, *Materials Science and Engineering A: Structural Materials: Properties, Microstructures and Processing*, 568, 88-95

Shrestha, S.L., Zhu, C., Proust, G, Barbaro, F, Killmore, C, Carpenter, K, Kaul, H, Xie, K, Ringer, S P, Cairney, J M 2013, An Overview of the Effect of Nb in Strengthening Castrip steel, *Materials Science Forum*, 753, 559-562

Sirignano, M, Kent, J H, D'Anna, A 2013, Modeling Formation and Oxidation of Soot in Nonpremixed Flames, *Energy and Fuels*, 27(4), 2303-2315

Song, X, Sun, G, Li, G, Gao, W, Li, Q 2013, Crashworthiness optimization of foam-filled tapered thin-walled structure using multiple surrogate models, *Structural and Multidisciplinary Optimization*, 47(2), 221-231

Sue, A, Tran, P, Wong, P, Li, Q, Carter, P 2013, Time-Domain Finite Element Models of Electrochemistry in Intracochlear Electrodes, *IEEE Engineering in Medicine and Biology Society. Conference Proceedings*, 2013, 1554-1557

Sun, J L, Trimby, P.W., Yan, F, Liao, X, Tao, N, Wang, J 2013, Grain size effect on deformation twinning propensity in ultrafine-grained hexagonal close-packed titanium, *Scripta Materialia*, 69(5), 428-431

Sun, J, Trimby, P.W., Si, X, Liao, X, Tao, N, Wang, J 2013, Nano twins in ultrafine-grained Ti processed by dynamic plastic deformation, *Scripta Materialia*, 68(7), 475-478

Sweeney, M, Hochgreb, S, Dunn, M J, Barlow, R 2013, Multiply conditioned analyses of stratification in highly swirling methane/air flames, *Combustion and Flame*, 160(2), 322-334

Tan, X, Collocott, S, Liu, H., Xiong, X, Xu, H 2013, Structural analysis of nanocrystals and their role in the coercivity mechanism of Nd-Fe-Al-Dy bulk amorphous ferromagnets, *Journal of Magnetism and Magnetic Materials*, 343, 27-31

Tang, Y, Ye, L, Zhang, Z, Friedrich, K 2013, Interlaminar fracture toughness and CAI strength of fibre-reinforced composites with nanoparticles - A review, *Composites Science and Technology*, 86, 26-37

Tanner, R I, Dai, S C, Qi, F, Housiadas, K 2013, Viscometric functions of semi-dilute non-colloidal suspensions of spheres in a viscoelastic matrix, *Journal of Non-Newtonian Fluid Mechanics*, 201, 130-134

Tanner, R I, Qi, F, Dai, S C 2013, Scaling the normal stresses in concentrated non-colloidal suspensions of spheres, *Rheologica Acta*, 52(4), 291-295

Tanner, R I, Qi, F, Uthayakumaran, S, Dai, S C 2013, The effect of pre-test deformation on dough rheology, *Rheologica Acta*, 52(1), 33-38

Thompson, M, Zhang, Z, Field, C, Li, Q, Swain, M V 2013, The all-ceramic, inlay supported fixed partial denture. Part 5. Extended finite element analysis validation, *Australian Dental Journal*, 58(4), 434-441

Tran, P, Wong, P, Sue, A, Li, Q, Carter, P 2013, Influence of blood vessel conductivity in cochlear implant stimulation using a finite element head model, *IEEE Engineering in Medicine and Biology Society. Conference Proceedings*, 2013, 5291-5294

Valenzuela, G.C., Wong, K, Connor, D, Behnia, M, Parsi, K 2013, Foam Sclerosants are More Stable at Lower Temperatures, *European Journal of Vascular and Endovascular Surgery*, 46(5), 593-599

Vasista, S, Tong, L 2013, Topology Optimized Design and Testing of a Pressure-Driven Morphing Aerofoil Trailing Edge Structure, *AIAA Journal*, 51(8), 1898-1907

Verstraete, D 2013, Long range transport aircraft using hydrogen fuel, *International Journal of Hydrogen Energy*, 38(34), 14824-14831

Wang, C, He, X, Tong, L, Peng, Q, Wang, R, Li, Y, Li, Y 2013, Theoretical prediction and experimental verification of pulling carbon nanotubes from carbon fiber prepared by chemical grafting method, *Composites Part A: Applied Science and Manufacturing*, 50, 1-10

Wang, F, Jiang, Y, Wen, X, Xia, J.H., Sha, G, Amal, R 2013, Confined Au-Pd ensembles in mesoporous TiO2 spheres for the photocatalytic oxidation of acetaldehyde, *ChemCatChem*, 5(12), 3557-3561

Wang, G, Lu, Z., Zhao, X, Kondyurin, A, Zreiqat, H 2013, Ordered HAp nanoarchitecture formed on HAp-TCP bioceramics by "nanocarving" and mineralization deposition and its potential use for guiding cell behaviors, *Journal of Materials Chemistry B*, 1(19), 2455-2462

Wang, H, Juddoo, M, Starner, S H, Masri, A R, Pope, S 2013, A Novel Transient Turbulent Jet Flame for Studying Turbulent Combustion, *Proceedings of the Combustion Institute*, 34(1), 1251-1259

Wang, X, Choi, J, Mitchell, D R G, Truong, Y, Kyratzis, I, Caruso, R 2013, Enhanced Photocatalytic Activity: Macroporous Electrospun Mats of Mesoporous Au/TiO2 Nanofibers, *ChemCatChem*, 5(9), 2646-2654

Wang, Y, Liao, X, Zhao, Y, Cooley, J, Horita, Z, Zhu, Y 2013, Elemental separation in nanocrystalline Cu-Al alloys, *Applied Physics Letters*, 102(23), 1-6

Wei, K, Ye, L, Ning, L, Liu, Y 2013, Nonlinear dynamic response of a cracked beam under multi-frequency excitation, *Advances in Vibration Engineering*, 12(5), 431-446

Williamson, N J, Armfield, S W, Kirkpatrick, M P, Norris, S 2013, A canonical model for stratified flow in estuaries and rivers, *ANZIAM Journal*, 54, C88-C101

Witt, N, Tang, Y, Ye, L, Fang, L 2013, Silicone rubber nanocomposites containing a small amount of hybrid fillers with enhanced electrical sensitivity, *Materials and Design*, 45, 548-554

Wu, S, Guo, Q, Kraska, M, Stuhn, B, Mai, Y 2013, Toughening Epoxy Thermosets with Block Ionomers: The Role of Phase Domain Size, *Macromolecules*, 46(20), 8190-8202

Wu, S, Guo, Q, Zhang, T, Mai, Y 2013, Phase behavior and nanomechanical mapping of block ionomer complexes, *Soft Matter*, 9, 2662-2672

Wu, W, Liu, Q, Zong, Z, Sun, G, Li, Q 2013, Experimental investigation into transverse crashworthiness of CFRP adhesively bonded joints in vehicle structure, *Composite Structures*, 106, 581-589

Xia, J.H., Sha, G, Chen, Z, Liao, X, Liu, H., Ringer, S P 2013, Precipitation of quasicrystal approximant phases in an AlMgCuGe alloy, *Philosophical Magazine Letters*, 93(2), 77-84

Xiang, Y, Chitry, V, Liddicoat, P. V., Felfer, P J, Cairney, J M, Ringer, S P, Kruse, N 2013, Long-Chain Terminal Alcohols through Catalytic CO Hydrogenation, *Journal of the American Chemical Society*, 135(19), 7114-7117

Xie, Y, Shrestha, S.L., Cao, Y, Felfer, P J, Wang, Y, Liao, X, Cairney, J M, Ringer, S P 2013, The effect of pre-existing defects on the strength and deformation behavior of a-Fe nanopillars, *Acta Materialia*, 61(2), 439-452

Xie, Y, Shrestha, S.L., Felfer, P J, Cairney, J M, Killmore, C, Carpenter, K, Kaul, H, Ringer, S P 2013, High Strength and Retained Ductility Achieved in a Nitrided Strip Cast Nb-Microalloyed Steel, *Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science*, 44A(2), 848-855

Xie, Y, Wang, Y, Zhao, Y, Chang, L, Wang, G, Chen, Z. -B., Cao, Y, Liao, X, Lavernia, E, Valiev, R, Sarrafpour, B, Zoellner, H, Ringer, S P 2013, Nanocrystalline B-Ti alloy with high hardness, low Young's modulus and excellent in vitro biocompatibility for biomedical applications, *Materials Science and Engineering C: Materials for Biological Applications*, 33(6), 3530-3536

Xu, F, Sun, G, Li, G, Li, Q 2013, Crashworthiness design of multi-component tailor-welded blank (TWB) structures, *Structural and Multidisciplinary Optimization*, 48(3), 653-667

Xu, S A, Wang, G, Mai, Y 2013, Effect of hybridization of liquid rubber and nanosilica particles on the morphology, mechanical properties, and fracture toughness of epoxy composites, *Journal of Materials Science*, 48(9), 3546-3556

Xu, Z, Fitch, R C, Underwood, J P, Sukkarieh, S 2013, Decentralised Coordinated Tracking with MixedDiscrete-Continuous Decisions, *Journal of Field Robotics*, 30(5), 717-740

Yang, C, Mai, Y 2013, Size, Dimensionality, and Constituent Stoichiometry Dependence of Physicochemical Properties in Nanosized Binary Alloys, *The Journal of Physical Chemistry Part C: Nanomaterials and Interfaces*, 117(5), 2421-2426

Yang, K, Gan, J S K, Sukkarieh, S 2013, A Gaussian process-based RRT planner for the exploration of an unknown and cluttered environment with a UAV, *Advanced Robotics*, 27(6), 431-443

Yang, K, Jung, D, Sukkarieh, S 2013, Continuous curvature path-smoothing algorithm using cubic Bzier spiral curves for non-holonomic robots, *Advanced Robotics*, 27(4), 247-258

Yang, K, Kang, Y, Sukkarieh, S 2013, Adaptive nonlinear model predictive path-following control for a fixed-wing unmanned aerial vehicle, *International Journal of Control, Automation and Systems*, 11(1), 65-74

Yao, L L, Cairney, J M, Gault, B, Zhu, C., Ringer, S P 2013, Correlating spatial, temporal and chemical information in atom probe data: new insights from multiple evaporation in microalloyed steels, *Philosophical Magazine Letters*, 93(5), 299-306

Yao, L, Ringer, S P, Cairney, J M, Miller, M 2013, The anatomy of grain boundaries: Their structure and atomic-level solute distribution, *Scripta Materialia*, 69(8), 622-625

Ye, L, Zhang, D, Wang, D 2013, Advanced composites with multi-functionality enhanced by nanoparticles, *Advanced Materials Research*, 747, 19-22

Yong, A S C, Pennings, G, Wong, C, Javadzadegan, A, Brieger, D B, Lowe, H, Qi, M, Behnia, M, Krilis, S, Kritharides, L 2013, Intracoronary upregulation of platelet extracellular matrix metalloproteinase inducer (CD147) in coronary disease, *International Journal of Cardiology*, 166(3), 716-721

Yu, N Y C, Schindeler, A J, Peacock, L, Mikulec, K, Fitzpatrick, J, Ruys, A J, Cooper-White, J, Little, D G 2013, Modulation of anabolic and catabolic responses via a porous polymer scaffold manufactured using thermally induced phase separation, *European Cells and Materials*, 25, 190-203

Zhang, J, Chang, L, Deng, S, Ye, L, Zhang, Z 2013, Some insights into effects of nanoparticles on sliding wear performance of epoxy nanocomposites, *Wear*, 304(1-2), 138-143

Zhang, J, Deng, S, Wang, Y, Ye, L, Zhou, L, Zhang, Z 2013, Effect of nanoparticles on interfacial properties of carbon fibre-epoxy composites, *Composites Part A: Applied Science and Manufacturing*, 55, 35-44

Zhang, Mei, Boughton, P C, Rose, B R, Lee, C S, Hong, A M Y 2013, The Use of Porous Scaffold as a Tumor Model, *International Journal of Biomaterials*, 2013, 1-9

Zhang, W, Wang, G, Liu, Y, Zhao, X, Zou, D, Zhu, C, Jin, Y, Huang, Q, Sun, J, Liu, X, Xinquan, J, Zreiqat, H 2013, The synergistic effect of hierarchical micro/nano-topography and bioactive ions for enhanced osseointegration, *Biomaterials*, 34(13), 3184-3195

Zhang, Y, Sun, G, Xu, X, Li, G, Huang, X, Shen, J, Li, Q 2013, Identification of material parameters for aluminum foam at high strain rate, *Computational Materials Science*, 74, 65-74

Zhang, Z, Guazzato, M, Sornsuwan, T, Scherrer, S, Rungsiyakull, C, Li, W, Swain, M V, Li, Q 2013, Thermally induced fracture for core-veneered dental ceramic structures, *Acta Biomaterialia*, 9(9), 8394-8402

Zhao, X, Wang, G, Zheng, H, Lu, Z., Zhong, X, Cheng, X, Zreiqat, H 2013, Delicate refinement of surface nanotopography by adjusting TiO2 coating chemical composition for enhanced interfacial biocompatibility, *ACS Applied Materials and Interfaces*, 5(16), 8203-8209

Zheng, Z, Liu, W, Liao, Z, Ringer, S P, Sha, G 2013, Solute clustering and solute nanostructures in an Al-3.5Cu-0.4Mg-0.2Ge alloy, *Acta Materialia*, 61(10), 3724-3734

Zhou, S, Huang, X, Li, Q, Xie, Y 2013, A study of shape optimization on the metallic nanoparticles for thin-film solar cells, *Nanoscale Research Letters*, 8(447), 1-6

Zhou, S, Hunang, X, Li, Q, Xie, Y 2013, Optimizing two-level hierarchical particles for thin-film solar cells, *Optics Express*, 21(SUPPL.2), A285-A294

Zhou, S, Xie, Y, Li, Q, Huang, X 2013, Fishnet metamaterial with double negative refractive index in blue region of visible spectrum, *Proceedings of SPIE - International Society for Optical Engineering*, 8806, 1-6

Zhu, S.Q, Yan, H, Chen, J, Wu, Y, Du, Y, Liao, X 2013, Fabrication of Mg-Al-Zn-Mn alloy sheets with homogeneous fine-grained structures using high strain-rate rolling in a wide temperature range, *Materials Science and Engineering A: Structural Materials: Properties, Microstructures and Processing*, 559, 765-772

Zhu, Y, Liao, X, Wu, X, Narayan, J 2013, Grain size effect on deformation twinning and detwinning, *Journal of Materials Science*, 48(13), 4467-4475

Back to Contents

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