Materials Australia



Asia-Pacific International Conference on Additive Manufacturing

APICAM 2019 – 1 July - 3 July 2019
RMIT University, Melbourne

APICAM2019

APICAM2019

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Welcome from Materials Australia

Welcome to the 2019 Asia-Pacific International Conference on Additive Manufacturing (APICAM), the second of its kind to be held in the Asia Pacific region.

APICAM was created to provide an opportunity for industry professionals and thought-leaders to come together, share knowledge and engage in the type of networking that is vital to furthering the additive manufacturing industry.

Attendees will hear from some of the leading minds in the industry, who will present highly informative and engaging presentations on pressing issues, as well as the ways in which innovations can navigate challenges. Important areas such as 3D printing and additive manufacturing in the automotive, biomedical, defence and aerospace industries will be covered by experts from each respective field.

The keynote presentations include: *Production Level Additive Manufacturing* by Yathiraj Kasal (from GE); *I AM SIEMENS – Industrialized Additive Manufacturing* by Siemens by Ingomar Kelbassa (from Siemens); *Recent Developments in Additive Manufacturing in Europe* by Professor Christoph Leyens (from the Technische Universität); *3D Printed Orthopaedic Implants in China* by Professor Huiping Tang (from the Northwest Institute for Nonferrous Metal Research); *Polymers for Powder Bed Fusion* by Professor David L. Bourell (from the University of Texas); and *Structure Evolution Across Build Layers in EB Additive Nickel Alloys* by Professor Tresa Pollock (from the University of California).

The keynote addresses will be complemented by countless other presentations, across a variety of subject areas, including Additive Manufacturing of Concretes and Ceramics, Additive Manufacturing of Metals, Additive Manufacturing of Polymers, Computational Modelling of Thermal Processes for Metallic Parts, Mechanical Properties of Additively Manufactured Materials, Process-Microstructure-Property Relationships, and New Frontiers in Additive Manufacturing: Testing and Qualification in Additive Manufacturing.

The Conference Dinner, held at ZINC in Federation Square is sure to be a highlight. The Dinner is an opportunity for industry professionals to get together in a more relaxed setting and to forge friendships that might otherwise be impossible. On behalf of Materials Australia, I encourage all attendees to take advantage of this unique opportunity to connect with colleagues from around the globe and share your thoughts on issues raised during the conference, as well as broader industry developments.

Of course, none of this would be possible without our conference sponsors. Materials Australia would like to extend our gratitude to the Department of Defence, our Platinum Sponsor, and the CSIRO, our Dinner Sponsor.

We would also like to thank our sponsors, including 3D Ceram, ATA Scientific, ATLAS, Bruker, Renishaw, Simufact, and Titomic; and our supporting sponsors, including American Elements, AML3D, DefendTex, the Institute for Frontier Materials, Metal AM, RMIT University, UTS, the University of Sydney and Woodside.

Without them, we wouldn't be able to deliver such quality material, engage with well respected associations and attract the experts that we do. Our supporters provide resources, expertise and experience and allow us to move beyond the basics of a conference and create an environment where ideas find germination, like-minded people come together, and knowledge is shared across all types of disciplines.

We hope you enjoy the Asia-Pacific International Conference on Additive Manufacturing.

Materials Australia

Regards,

Paul Plater
National President

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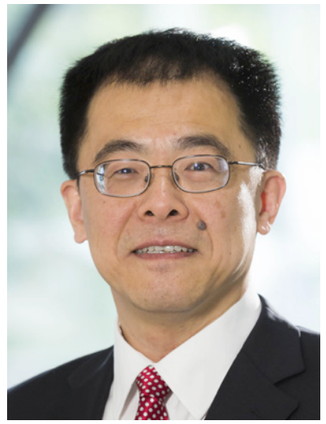
APICAM2019 – CHAIRS

Distinguished Professor Ma Qian - RMIT University

Dr Ma Qian is a RMIT Distinguished Professor and Deputy Director of the Centre for Additive Manufacturing (AM) at Royal Melbourne Institute of Technology (RMIT). His current research centres on metal AM, solidification processing, and powder metallurgy. His most recent relevant contributions include co-development of *"The Interdependence Theory for Grain Formation during Solidification"* (Acta Mater 2011;59:4907; 2010;58:3262), which is being applied to metal AM today, and an innovative selective laser melting process for Ti-6Al-4V (Acta Mater 2015;85:74), as well as identification of massive phase transformation in AM Ti-6Al-4V (Acta Mater 2016;104:303). He co-authored the 5th edition Ian Polmear book on *Light Alloys: Metallurgy of the Light Metals* (2017, Elsevier) with Ian Polmear, David StJohn and Jian-Feng Nie, and edited three Elsevier books on titanium alloys with F. H. Froes. He has one invention on magnesium alloys commercialised by industry (in production since 2013). With his collaborators and PhD students, he has published 216 journal papers, which have resulted in 10 research awards. He initiated the biennial international conference on Titanium Powder Metallurgy in 2011 (co-sponsored by Materials Australia, TiDA, TMS, JSPM and CSM). Currently he serves as an Associate Editor for *Acta Materialia* and *Scripta Materialia*.

Professor Jian-Feng Nie - Monash University



Jian-Feng Nie received his B.Eng. degree from Beijing Institute of Technology in 1986 and PhD degree from Monash University in 1993. He is a professor of Monash University. His current research interests cover physical metallurgy of magnesium and aluminium alloys, applications of scanning transmission electron microscopy in materials characterisation, and processing-microstructure-property relationships in metallic alloys. He has co-authored one book on light alloys, published one book chapter in the 5th edition of Physical Metallurgy, co-authored over 150 papers in major international journals, and edited proceedings of several major international conferences. He was awarded the Marcus Grossmann Young Authors Award of ASM International in 2006, AIME Champion Mathewson Medal Award of TMS in 2015, and TMS Extraction and Processing Division Technology Award in 2017. He is editor of Metallurgical and Materials Transactions, former Chair of Phase Transformations Committee of TMS, and chair of the National Events Committee of Materials Australia. He chaired several international conferences, including the 7th Pacific Rim International Conference on Advanced Materials and Processing (PRICM-7), which was held in Cairns in 2010.

APICAM2019 – PLENARIES

Yathiraj Kasal

Production Level Additive Manufacturing

Yathiraj Kasal leads GE Additive's AddWorks team in the Asia-Pacific region. An additive technology evangelist, Yathiraj has over 20 years' experience. He has led many projects for additive parts productionisation, material development, parameter optimisation, tooling and prototyping. At GE Additive, Yathiraj is responsible for the acceleration of additive adoption by GE's customers, including additive design, materials, industrialisation, production qualification, part qualification and prototyping.

Ingomar Kelbassa

I AM SIEMENS – Industrialized Additive Manufacturing by Siemens

Having studied mechanical engineering at RWTH Aachen University in Germany, Ingomar Kelbassa worked in the field of laser material processing at the Fraunhofer Institute for Laser Technology at the RWTH Aachen University from 2000 to 2016. In 2014, Ingomar joined RMIT University as an Adjunct Professor. In 2016, Ingomar joined Siemens AG and, in 2017, was promoted to the Head of Siemens AG's Company Core Technology Additive Manufacturing, and Director of Enabling Technologies.

Professor Christoph Leyens

Recent Developments in Additive Manufacturing in Europe

Dr Leyens is a Professor of Materials Science at the Technische Universität, and the Director of the Fraunhofer Institute of Materials and Beam Technology, both located in Dresden, Germany. Dr Leyens has covered a wide range of research topics with a focus on high temperature and lightweight materials, functional materials, surface technology, coatings and additive manufacturing. He has published more than 200 papers, seven books and holds 11 patents.

Conference Dinner - Tuesday 2nd July

A highlight of the 2nd Asia-Pacific International Conference on Additive Manufacturing (APICAM) will be the Conference Dinner.

Materials Australia invites all conference attendees to add the Dinner to their calendar. It will be a fantastic opportunity for industry professionals to come together in a more relaxed setting, and engage in the type of networking that is vital to furthering the additive manufacturing industry.

The Conference Dinner will be held at ZINC in Federation Square on **Tuesday 2nd July 2019**. Set to run from 7pm to 11pm, the event will feature a number of guest speakers, accompanied by a three-course meal, with beverages included.

Federation Square – Swanston Street & Flinders Street, Melbourne VIC 3000

Dinner Sponsor

Materials Australia would like to thank our dinner sponsor, the CSIRO.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) uses science to solve real issues, and unlock a better future for our community, our economy, our planet. Collaborating with leading organisations around the world, the CSIRO is recognised internationally for their quality research.

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Professor Huiping Tang

3D Printed Orthopaedic Implants in China

Dr Tang is a Professor and Director of the State Key Laboratory of Porous Metal Materials, at the Northwest Institute for Nonferrous Metal Research in Xi'an, China. Her research includes metal additive manufacturing (AM) by selective electron beam melting (SEBM), porous metal materials, and powder metallurgy. Since 2001, she has led a team focused on metal powder production for AM, SEBM technologies, and manufacture of orthopaedic implants.

Professor David L. Bourell

Polymers for Powder Bed Fusion

Dr Bourell is the Temple Foundation Professor of Mechanical Engineering at The University of Texas at Austin. Dr Bourell's areas of research include particulate processing with emphasis on sintering kinetics and densification, and materials issues associated with laser sintering (LS). A leading expert in advanced materials for LS, Dr Bourell has worked in this area since 1988 and was the lead author on the original materials patent for LS technology. Dr Bourell is a Fellow of TMS and ASM International.

Professor Tresa Pollock

Structure Evolution Across Build Layers in EB Additive Nickel Alloys

Dr Pollock is the Alcoa Distinguished Professor of Materials at the University of California, Santa Barbara. She graduated with a PhD from MIT in 1989, and was employed at General Electric Aircraft Engines from 1989 to 1991. Professor Pollock was elected to the U.S. National Academy of Engineering in 2005, is a Fellow of TMS and ASM International, Principal Editor of Metallurgical and Materials Transactions and was the 2005-2006 President of The Minerals, Metals and Materials Society.

APICAM2019 – KEYNOTES

Professor Judith Schneider
DAY 3 - ROOM A - 11:00

Advancing manufacturing processes

Professor Xinhua Wu
DAY 2 - ROOM D - 9:55

New AM alloys and metallurgical issues for Selective Laser Melting (SLM)

Distinguished Professor Amir Zadpoor
DAY 1 - ROOM C - 11:00

AdvMeta-biomaterials: additive manufacturing of impossible biomaterials

Professor Chris Berndt
DAY 2 - ROOM B - 16:55

Additive manufacturing via thermal spray technologies: transforming science into industrial applications

Professor Dr.-Ing. Claus Emmelmann
DAY 3 - ROOM A - 8:50

3D Printing – exploiting profitable applications with new technologies

Professor Craig Brice
DAY 3 - ROOM A - 15:00

On the applicability of additive manufacturing for superhero suit fabrication

Professor Dietmar W. Hutmacher
DAY 1 - ROOM B - 12:10

3D Printonomics – why we need to change the current paradigm by changing the question from "what can we do with this fabrication method?" to "how can we change this fabrication process to achieve what we need

Professor Dipankar Banerjee
DAY 2 - ROOM D - 14:25

Additive repair processes for high temperature materials

Professor Dong Ruan
DAY 1 - ROOM B - 16:45

Mechanical properties of additively manufactured auxetic structures

Professor Dongdong Gu
DAY 1 - ROOM D - 10:10

Laser additive manufacturing of high-performance and multi-function metallic components

Professor Hamish Fraser
DAY 1 - ROOM A - 9:45

Design of titanium alloys processed using additive manufacturing for structural applications

Dr. Hendrik Schafstall
DAY 2 - ROOM B - 12:00

Accelerate the additive design and development process

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APICAM2019 – KEYNOTES

Dr. John S Carpenter
DAY 3 - ROOM B - 9:40

Using high energy x-ray diffraction to probe additively manufactured metals over a range of length and time scales

Associate Professor Kate Fox
DAY 1 - ROOM C - 15:05

Additive manufacturing for improved biointerfaces

Dr. Katsuyoshi Kondoh
DAY 1 - ROOM D - 14:55

Nitrogen solid solution strengthening in AM titanium materials

Professor Kenong Xia
DAY 1 - ROOM A - 16:00

Hybridisation of microstructures by selective laser melting - a new strategy for future alloys

Khan Sharp
DAY 3 - ROOM A - 14:25

Materials for defence: Opportunities for additive manufacturing

Dr. Leon Prentice
DAY 3 - ROOM A - 9:25

Progress in novel titanium powder processes for additive manufacturing

Professor Mark Easton
DAY 2 - ROOM C - 11:00

Refinement of the microstructure in additively manufactured alloys

Dr. Peter C. Collins
DAY 2 - ROOM C - 14:55

On the possibility of real-time techniques to enable property prediction in additive manufactured materials

Professor Peter Lee
DAY 3 - ROOM B - 11:00

In situ synchrotron imaging of additive manufacturing

Dr. Rajarshi Banerjee
DAY 1 - ROOM A - 14:25

Additive manufacturing of soft magnetic alloys

Dr. Roger Lumley
DAY 3 - ROOM C - 14:55

AWBell's additive routes for investment castings in the last two decades

Professor Shujun Li
DAY 1 - ROOM C - 11:35

Mechanical properties of titanium alloy with cellular structures fabricated by additive manufacturing

APICAM2019 – KEYNOTES

Professor Simon Ringer
DAY 2 - ROOM A - 14:25

Microstructural control in additive manufacturing of metal alloys

Dr. Sri Lathabai
DAY 2 - ROOM A - 8:50

Additive manufacturing of low alloy steels

Dr. Tao Sun
DAY 3 - ROOM B - 11:35

In situ synchrotron x-ray study of additive manufacturing processes and materials

Professor Tarasankar DebRoy
DAY 2 - ROOM B - 11:25

Mechanistic models of powder bed fusion and directed energy deposition processes

Dr.-Ing. Thomas Niendorf
DAY 2 - ROOM D - 16.00

On the reliability of metallic alloys processed by additive manufacturing

Warwick Downing
DAY 3 - ROOM B - 15:05

Consistently achieving full strength metal 3D printing production parts

Professor Xiaoyan Zeng
DAY 3 - ROOM D - 16:55

Selective laser melting: art status and developing tendency

Professor Xin Lin
DAY 2 - ROOM D - 16:35

Low cycle fatigue behavior of Ti-6Al-4V alloy fabricated by high-power laser solid forming additive manufacturing

Professor Yong Liu
DAY 1 - ROOM D - 12:00

Additive manufacturing of complex-component alloys

RMIT WiFi – APICAM2019

Guests will need to connect to the RMIT-Guest wireless network with their device, and then click on “Event” when their device asks for Event or sponsor.

Then they will need to enter the event code (on left), and on the next screen enter some details and agree to terms and conditions, and click the Log In button.

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Event Code: 693862

The code will be active until 6:00pm 3 July 2019.

RMIT WIFI
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APICAM2019

Commitee Members

Ms Tanya Smith	(Materials Australia)
Professor Milan Brandt	(RMIT University)
Dr Leon Prentice	(CSIRO)
Mr Stefan Gulizia	(CSIRO)
Dr Alex Shekhter	(DSTG)
Dr Qianchu Liu	(DSTG)
Professor Nick Birbilis	(Australian National University)
Professor Huijun Li	(University of Wollongong)
A/Professor Daniel Fabijanic	(Deakin University)
Dr Jonathan Miller	(US Airforce Research Laboratory)
Matthew Young	(Innovative Manufacturing CRC Limited)
Dr Mitchell Sessso	(LaTrobe University)
Professor Kenong Xia	(University of Melbourne)
Professor Dietmar Hutmacher	(Queensland University of Technology)
Professor Mingxing Zhang	(The University of Queensland)
Professor Yongxiang Li	(RMIT University)
Prof Simon Ringer	(University of Sydney)
Associate Professor Dongbin Wei	(University of Technology Sydney)
Professor Shoujin Sun	(Griffith University)

Conference Secretaries

Dr. Andrey Molotnikov
Monash University

Dr. Tingting Song
RMIT University

Conference Organizer

Materials Australia

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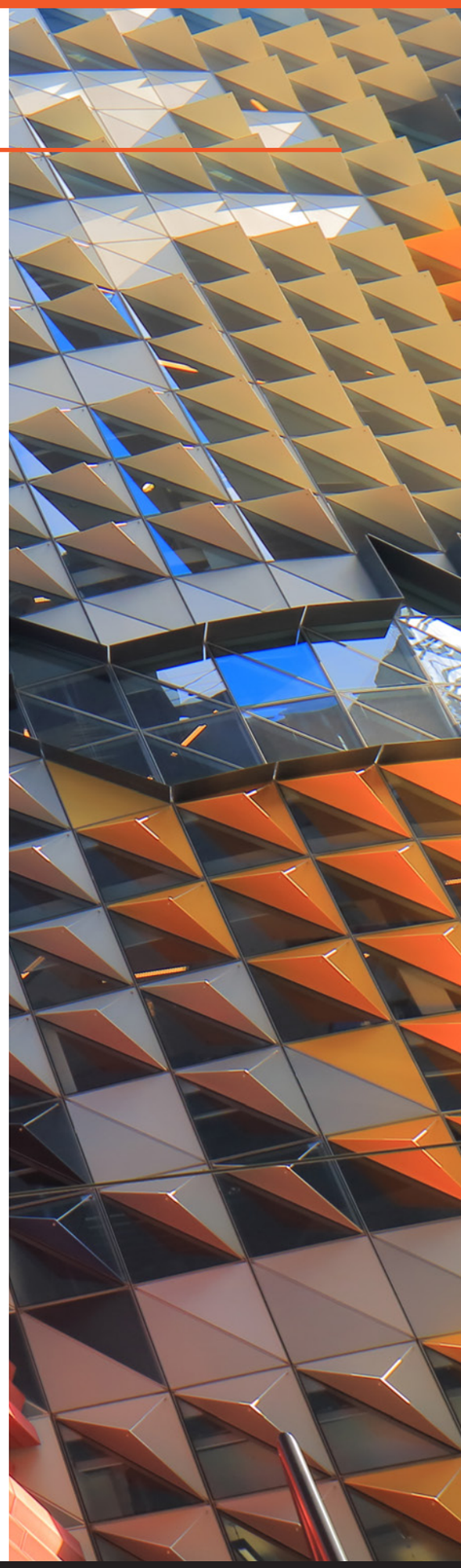


APICAM2019

Day 1 Highlights

8:30	**CONFERENCE OPENING** **RMIT + MATERIALS AUSTRALIA**	ROOM A
EVERY DAY	**CONFERENCE CATERING:** **MORNING TEA & AFTERNOON TEA WILL BE SERVED IN ROOMS 80.03.05 & 80.03.06** **LUNCH WILL BE SERVED IN ROOMS 80.03.05 & 80.03.06**	
EVERY DAY	**VISIT OUR APICAM EXHIBITORS: ROOM 80.03.06**	
18:15	**WELCOME FUNCTION AND POSTER SESSION - LEVEL 3, FOYER**	

Abstract for Posters

POSTER SESSION

Name	Abstract Title
Labani Mustafi	A review of medium to high entropy alloys for biomedical applications by casting and additive manufacturing methods
Mahmudun-Nabi Chowdhury	Selective laser melting of 4041 steel
Bill Lozanovski	Computational modelling of strut defects in SLM manufactured lattice structures
Laboni Afroz	Fatigue behaviour of additively manufactured aluminium alloy
Shenglu Lu	A yttrium-containing high-temperature titanium alloy manufactured by selective electron beam melting
Guangyu Yang	Densification and microstructure of tungsten fabricated by selective electron beam melting (SEBM)
Nan Liu	Microstructure and properties of Ti-48Al-2Nb-2Cr alloy fabricated by selective electron beam melting
Liang Jia	Effect of model processing on forming accuracy of titanium alloy parts by electron beam 3D printing
Kun Yang	Microstructure and properties of biomedical TiNbTaZrSi alloy fabricated by selective electron beam melting
Jian Wang	Additive manufacturing of tantalum lattice structures by selective electron beam melting
Tingting Song	Selective laser melting printed Ti-6Al-4V RMIT Mace
Joe Elambasseril	3D characterisation of defects in deep-powder-bed SEBM-fabricated Ti-6Al-4V
Diego Corradi	Wire arc additive manufacturing process assisted by magnetic arc oscillation
Shenglu Lu	Texture evolvement during hot isostatic pressing of selective electron beam melted Ti-6Al-4V plates and its fundamental influence on tensile performances
Leon Prentice	Lab22 and CSIRO's metallic AM priorities
Derui Jiang	Additive manufacturing of duplex stainless steels using selective laser melting
Victor Cruz de Faria	Stress corrosion cracking of 316L stainless steel produced by selective laser melting
Darren Feenstra	Effect of energy density on the interface evolution of INC 625 and stainless steel 316L builds fabricated via DLD

DAY 1 – POSTER SESSION LEVEL 3, FOYER

Name	Abstract Title
Bryan Lim	Development of an integrated clustering analyses for atom probe tomography of additively manufactured alloys
Kaiwen Wei	Effect of laser remelting on surface quality, defect content, residual stress level, microstructure, and mechanical property of selective laser melting processed titanium alloy
Hansheng Chen	Graded microstructure of additive manufactured Ti-6Al-4V via electron beam melting
Haozhang Zhong	The stress-accommodation and self-accommodation mediated by the shape strain in additively manufactured Ti-6Al-4V
Javad Karimi	Selective laser melting of Ti6Al4V: effect of remelting
Shujuan Shen	Investigation on heat treatment induced microstructural and mechanical behavior of SLM processed AlSi10Mg
William Davids	Initial observations of interstitial solute concentration in α and β phases of additively manufactured Ti-based alloys
Duyao Zhang	Effect of copper on microstructure and mechanical properties in additive manufactured Ti alloys
Haozhang Zhong	Heuristic optimization of lattice implants to adapt to the mechanical anisotropy of human cortical bones
Martin Mapley	Low-cost polymer-based selective laser sintering
Bin Liu	Solidification behavior and interfacial bonding mechanism of graphene-reinforced Ni-based composites prepared by selective laser melting
Zhigang Zhu	Micro/nano- approaches for chemical sensors for 3D printing
Shenglu Lu	Formation and in-situ decomposition of the massive phase grains in selective electron beam melted Ti-6Al-4V
Cameron Barr	Influence of deposition strategy on defect evolution and fatigue life in 300M high strength steel following LMD repair
Edward Lui	Selective laser melting of Ti-6Al-4V at the layer thickness of 90 micrometres
Joe Elambasseril	Powder feedstock characterization of Ti-6Al-4V for selective laser melting
Ahmad Alghamdi	Experimental and numerical evaluation of the critical buckling load and effective eccentricity of SLM lattice elements
Bill Lozanovski	Bayesian probability and Monte-Carlo methods applied for the rapid simulation of realistic AM lattice
Alistair Jones	Robust manufacturability characterisation of AM triply periodic minimal surfaces
Matthew McMillan	Experimental assessment of AM thermal fields
Rance Tino	Generative design of patient-specific AM radiation dosimetry phantoms
Martin Leary	Generative design for high-value low-cost AM design
Tobias Maconachie	Selective laser melting support structure optimisation
Marcus Watson	Topology optimisation for generative design of AM structures
Anna Paradowska	Tomography driven diffraction novel adaptation of the method for additive manufacturing developed at ANSTO
Anna Paradowska	Australian contribution to the developments of the X-ray and neutron base NDT standards for Additive Manufacturing - progress on the development of Round Robin Program with NASA and ASTM
Zefeng Wu	Nano-scaled metastable beta-titanium alloys additively manufactured by laser metal deposition
Abduladheem Almalki	Bioinspired design of structurally optimised AM column structures
Georgia Hunter	Mechanical characterisation and modelling of acrylic-based photopolymers 3D-printed using PolyJet Technology
Zhenhua Li	Effect of powder recycling on the mechanical properties and dimensional accuracy of selective laser sintered polyamide
Yinghao Zhou	Selective laser melting of the hard-to-weld IN738LC superalloy: efforts to mitigate defects and the resultant microstructural and mechanical properties
Yingying Sun	Bioprinting and medical implants and design

DAY ONE

MONDAY 1 July 2019

DAY 1 – ROOM A BUILDING 16.1.01 STOREY HALL

7:30	**APICAM 2019 REGISTRATION - Level 3, Foyer**		
8:30	**Conference Opening (Materials Australia President + RMIT DVC R&I)** **CHAIRS: Professor Jianfeng Nie + Distinguished Professor Ma Qian**		
8:55	**Plenary**	**Prof Christoph Leyens -** Recent Developments in Additive Manufacturing in Europe **CHAIR: Distinguished Professor Milan Brandt**	
ROOM A		**Additive Manufacturing of Metals - CHAIR: Professor Rajarshi Banerjee**	
9:45	Keynote	Hamish Fraser	Design of titanium alloys processed using additive manufacturing for structural applications
10:20		Alexander Medvedev	Ballistic performance of additively manufactured Ti-6Al-4V alloy
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM A		**Additive Manufacturing of Metals - CHAIR: Professor Peter Lee**	
11:00	Invited	Yoshimi Watanable	Selective laser melting of aluminum with TiC heterogeneous nucleation site particles
11:25	Invited	Michael Bermingham	Promoting the columnar to equiaxed transition and grain refinement of titanium alloys during additive manufacturing
11:50	Invited	David StJohn	How the Interdependence model reveals the mechanisms of nucleation and grain formation during additive manufacturing
12:15		Xiyu Yao	Selective laser melting under the Ar–N2 reactive atmosphere: a convenient and efficient approach to fabricate ultrahigh strength commercially pure titanium without sacrificing ductility
12:30		Jiansheng Wang	Titanium - titanium carbide graded insitu composites produced via laser engineered net shape processing
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Yathiraj Kasal -** Production Level Additive Manufacturing - 5 Tips for Success **CHAIR: Professor Judith Schneider** ROOM A	
ROOM A		**Additive Manufacturing of Metals - CHAIR: Professor Mark Easton**	
14:25	Keynote	Rajarshi Banerjee	Additive manufacturing of soft magnetic alloys
15:00	Invited	Ahmad Zafari	Selective laser melting of Ti alloys
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM A		**Additive Manufacturing of Metals - CHAIR: Dr Leon Prentice**	
16:00	Keynote	Kenong Xia	Hybridisation of microstructures by selective laser melting - a new strategy for future alloys
16:35	Invited	Jianfeng Gu	Long-period stacking ordered phase in Ti-47Al-2Cr-2Nb alloy produced by direct laser deposition
17:00		Qi Chao	Controlling microstructure in situ in additively manufactured Ti-6Al-4V by selective laser melting
17:15		Alireza Dareh Baghi	Microstructural evolution in SLM and PM fabricated parts: nano-mechanical and microstructural characterization of Ti6Al4V
17:30		Ruinan Gu	Laser-based 3D printing of Cu and Cu alloys: challenges, solutions and their typical applications
17:45		Xiaofeng Li	Microstructural evolution and mechanical properties of NbC-containing AlCoCrFeNi high-entropy alloy prepared by laser cladding

DAY 1 – ROOM B BUILDING 12.5.02

ROOM B		**Additive Manufacturing of Polymers - CHAIR: A/Prof Yih-Lin Cheng**	
9:45	Invited	Mingyuan Lu	Additive manufacturing of biodegradable porous polymer scaffolds for bone tissue engineering
10:10	Invited	Phong Tran	3D printing of multifunctional tissue engineering scaffold
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM B		**Additive Manufacturing of Polymers - CHAIR: Professor Stuart Bateman**	
11:00	Invited	Timothy Hughes	Photocurable resins for 3D printing of soft and elastic materials
11:25		Yih-Lin Cheng	Study on 3D printing biodegradable photocurable PGSA/PEG-DA/PCL-DA copolymers
11:40		Michal Bartnikowski	High resolution custom 3D printed medical grade scaffolds for alveolar bone regeneration
11:55	Invited	Abdalla Abdal-hay	In vitro characterizations of PCL/magnesium hydroxide nanocomposites 3D printed scaffold
12:20	Keynote	Dietmar Hutmacher	3D printonomics – why we need to change the current paradigm by changing the question from “what can we do with this fabrication method?” to “how can we change this fabrication process to achieve what we need?”
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Yathiraj Kasal -** Production Level Additive Manufacturing - 5 Tips for Success **CHAIR: Professor Judith Schneider** ROOM A	
ROOM B		**Additive Manufacturing of Polymers - CHAIR: Dr Timothy Hughes**	
14:25	Invited	Yuxiao Lai	Evaluation of the PLGA/TCP/Mg porous scaffold fabricated by 3D printing for bone regeneration
14:50		Jun Zhang	3D printing of tuneable coloured agglomerates and strain distribution study
15:05		Krishna Prasath Logakannan	Mechanical response of hybrid auxetic tubes under axial compression
15:20		Dejana Pejak	Understanding the structure – process – performance relationship of high performance polymers via FDM
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM B		**Additive Manufacturing of Polymers - CHAIR: Professor David L. Bourell**	
16:00		Mazher Mohammed	Investigating a closed loop ecosystem for the conversion and manufacturing of waste plastics using solar powered extrusion additive manufacturing
16:15		Tiffany Chen	Direct material jetting functional surface structures onto aerospace coated substrates
16:30		Amirhossein Asfia	A review on additively manufactured immobilizers in radiation therapy
16:45	Keynote	Dong Ruan	Mechanical properties of additively manufactured auxetic structures
17:20		Raju Majji	Fabrication of scaled 3D model of bridge & terrain using advanced manufacturing and traditional manufacturing technologies
17:35		Thomas Romeijn	Investigation into the shear behaviour of thin walled FDM structures printed via the offset method
17:50		Cristian Deenen	Multi-component mesoscale manufacturing using a novel tool changing electrospinning platform

DAY ONE

MONDAY 1 July 2019

DAY 1 – ROOM C BUILDING 12.8.02

ROOM C		Additive Manufacturing of Metals (Bio applications) - CHAIR: Professor Shujun Li	
9:45	Invited	Eugene Ivanov	Additive manufacturing of metastable beta titanium alloys
10:10	Invited	Hao Wang	Microscale plastic deformation behavior of porous titanium alloys by additive manufacturing
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM C		**Additive Manufacturing of Metals (Bio applications) - CHAIR: A/Prof Kate Fox**	
11:00	Keynote	Amir Zadpoor	Meta-biomaterials: additive manufacturing of impossible biomaterials
11:35	Keynote	Shujun Li	Mechanical properties of titanium alloy with cellular structures fabricated by additive manufacturing
12:10		Avik Sarker	Effect of build inclination angle on additively manufactured titanium implants and their implications on mammalian cell attachment and staphylococcus aureus biofilm formation
12:25		Jiankai Yang	Laser 3D printed mantis shrimp bio-inspired impact resistant structure: structure optimization and failure mechanism
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Yathiraj Kasal -** Production Level Additive Manufacturing - 5 Tips for Success **CHAIR: Professor Judith Schneider**	ROOM A
ROOM C		**Additive Manufacturing of Metals (Bio applications) - CHAIR: Professor Dietmar Hutmacher**	
14:25	Invited	Xuezhe Zhang	Selective electron beam melting (SEBM) of Ti-6Al-4V lattice medical implants: clinical and research opportunities
14:50		Nicolas Soro	Mechanical compatibility of 3D-printed metallic lattices for hard tissue engineering
15:05	Keynote	Kate Fox	Additive manufacturing for improved biointerfaces
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM C		**Additive Manufacturing of Metals (Bio applications) - CHAIR: Professor Amir Zadpoor**	
16:00	Invited	Ke Chen	Joining between additive-manufactured porous TC4 and UHMWPE via friction spot welding for biomedical application
16:25	Invited	Yuncang Li	Development of β Ti35Zr28Nb alloy scaffolds by selective laser melting for biomedical applications
16:50		Nimal Thattaruparambil Raveendran	Development of a photo-crosslinkable gelatin based bioink for 3D bioprinting of bone cell
17:05	Invited	Karan Gulati	Dual micro-nano titanium dental implants towards tailored therapy
17:30	Invited	Anna Martin Vilardell	Characterization of topology optimized Ti6Al4V-ELI and Ti6Al4V-ELI +3%Cu lattice structures by laser powder bed fusion for biomedical applications
17:55		Kishore Venkatesan	Corrosion studies of additively manufactured Ti alpha-beta alloys
18:15	**FOYER**	**WELCOME FUNCTION AND POSTER SESSION – Level 3, Foyer**	

DAY 1 – ROOM D BUILDING 12.10.02

ROOM D		Additive Manufacturing of Metals - CHAIR: Dr Andrey Molotnikov	
9:45	Invited	Dong Qiu	Direct laser deposition of eutectoid titanium-copper alloys
10:10	Keynote	Dongdong Gu	Laser additive manufacturing of high-performance and multi-function metallic components
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM D		**Additive Manufacturing of Metals - CHAIR: Professor Dong Ruan**	
11:00		Kai Zhang	Grain boundary β formation and thickening in additive manufactured Ti-6Al-4V
11:15		Negin Amini	Various applications for 3D printing of particles
11:30		David Downing	Analysis of in-situ thermal field measurements from an SLM process
11:45		Bosheng Dong	The feasibility study of fabricating AlCoCrFeNi2.1 eutectic high entropy alloy using powder arc additive manufacturing
12:00	Keynote	Yong Liu	Additive manufacturing of complex-component alloys
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Yathiraj Kasal -** Production Level Additive Manufacturing - 5 Tips for Success **CHAIR: Professor Judith Schneider**	ROOM A
ROOM D		**Additive Manufacturing of Metals - CHAIR: A/Prof Ming Yan**	
14:25		Meng-Hsiu Tsai	Effect of energy density on the same titanium alloy product fabricated by select electron beam additive manufacture
14:40		Matthew McMillan	Application of thermocouples to the selective laser melting process
14:55	Keynote	Katsuyoshi Kondoh	Nitrogen solid solution strengthening in AM titanium materials
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM D		**Additive Manufacturing of Metals - CHAIR: A/Prof Aijun Huang**	
16:00	Invited	Ming Yan	Selective laser melting enabled additive manufacturing of Ti–22Al–25Nb intermetallic: excellent combination of strength and ductility, and unique microstructural features associated
16:25		Haiou Yang	CoAlW ternary alloy high-throughput laser additive manufacturing
16:40		Samuel Tedman-Jones	A novel framework for identifying nucleant particles and its application to titanium alloys produced by additive manufacturing
16:55	Keynote	Xiaoyan Zeng	Selective laser melting: art status and developing tendency
17:30		Lei Zhang	Design, manufacturing, mechanical and acoustic properties nature-inspired metal-water structure fabricated by selective laser melting
17:45		Hongmei Zhang	Laser additive manufacturing of Ni-based nanocomposites with enhanced mechanical and anti-corrosion performances
18:15	**FOYER**	**WELCOME FUNCTION AND POSTER SESSION – Level 3, Foyer**	

DAY TWO

TUESDAY 2 July 2019

DAY 2 – ROOM A BUILDING 16.1.01 STOREY HALL

8:00	Plenary	**Professor David L. Bourell -** Polymers for Powder Bed Fusion **CHAIR: Professor Claus Emmelmann**	
ROOM A		**Additive Manufacturing of Metals (Steels Alloys) - CHAIR: A/Prof Mohsen Seifi**	
8:50	Keynote	Sri Lathabai	Additive manufacturing of low alloy steels
9:25	Invited	Daniel Fabijanic	Selective laser melted 316L stainless steel: the effect of annealing on mechanical properties and corrosion behaviour
9:50		Darren Feenstra	Effect of energy density on the interface evolution of INC 625 and stainless steel 316L builds fabricated via DLD
10:05		Amir Mahyar Khorasani	Surface enhancement of AM stainless steel 316L by abrasive machining
10:20		Herve Harvard	Automatic reverse engineering and quality assessment of a high-speed 3D printed metal object"
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM A		**Additive Manufacturing of Metals - CHAIR: Dr Sri Lathabai**	
11:00	Invited	Maziar Ramezani	Effect of process parameters on sliding wear properties of selective laser melted 316L stainless steel
11:25	Invited	Mohsen Seifi	Metal additive manufacturing standardization and qualification issues
11:50		Gan Li	The effect of process parameters on density, hardness and surface quality of selective laser melted 18Ni300 steel
12:05		Derui Jiang	Additive manufacturing of duplex stainless steels using selective laser melting
12:20		Rebecca Murray	Performance of a cold spray additively manufactured water-cooled heat sink
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	Plenary	**Professor Tresa Pollock -** Structure Evolution Across Build Layers in EB Additive Nickel Alloys **CHAIR: Professor Jianfeng Nie**	
ROOM A		**Additive Manufacturing of Metals - CHAIR: A/Prof Daniel Fabijanic**	
14:25	Keynote	Simon Ringer	Microstructural control in additive manufacturing of metal alloys
15:00	Invited	Chao Chen	Microstructures and mechanical properties of additively manufactured Inconel 718 superalloy and their evolution during post heat treatment
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM A		**Additive Manufacturing of Metals (Steels) - CHAIR: Professor Dongdong Gu**	
16:00	Invited	Nan Kang	Evolution on microstructure and mechanical properties of a novel high tungsten steel using in-situ hydride additive manufacturing
16:25		Shenglu Lu	Laser welding of electron beam melted Ti-6Al-4V to wrought Ti-6Al-4V
16:40		Cameron Barr	Effect of repair depth on the mechanical performance of 300M high strength steel refurbished by laser metal deposition
16:55		M. G. Rashed	316L stainless steel microlattice structures: stiffer and stronger
17:10		Victor Crux de Faria	Stress corrosion cracking of 316L stainless steel produced by selective laser melting
17:25		Majid Laleh	Additive manufacturing of type 316L stainless steel: towards corrosion performance
17:40	Invited	Aijun Huang	By-products from laser-material interactions in Selective Laser Melting of metal powders

DAY 2 – ROOM B BUILDING 12.5.02

ROOM B		**AM of Metals, Part Design and Modelling - CHAIR: Dr Tony Murphy**	
8:50	Invited	Erik Denlinger	Industrial applications of additive manufacturing process simulation
9:15		Kaijie Lin	Multi-functional bio-inspired integrated thermal protection structures: design, numerical simulation and selective laser melting fabrication
9:30		Sharen Cummins	A semi-empirical microstructure evolution model for titanium alloys in additive manufacturing processe
9:45	Invited	Patrick O'Toole	Integrated computational materials engineering of additive manufacturing – linkage of open-source CLD and phase-field packages for process simulation & optimization of metal alloy part manufacturing
10:10	Invited	Rongming Lin	Finite element modeling and ultrasound characterization of 3D-printed polycarbonate-acrylonitrile butadiene styrene (PC-ABS) for aerospace applications
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM B		**AM of Metals, Part Design and Modelling - CHAIR: A/Prof Rongming Lin**	
11:00	Invited	Tony Murphy	A comprehensive model of metal additive manufacturing – progress and obstacles
11:25	Keynote	Tarasankar DebRoy	Mechanistic models of powder bed fusion and directed energy deposition processes
12:00	Keynote	Hendrik Schafstall	Accelerate the additive design and development process
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	Plenary	**Professor Tresa Pollock -** Structure Evolution Across Build Layers in EB Additive Nickel Alloys **CHAIR: Professor Jianfeng Nie**	ROOM A
ROOM B		**AM of Metals, Part Design and Modelling - CHAIR: Dr Vu Nguyen**	
14:25	Invited	Wenyi Yan	Numerical simulation of direct laser metal deposition for restoration and prediction of optimal process parameters
14:50		Peter Cook	Measurement of laser absorptivity by calibrated melt pool simulation
15:05		Marcus Lam	A multiphysics model of selective laser melting process for nickel-based superalloy IN738LC
15:20		Jamie Quinton	Laser Metal Deposition of Al-12Si alloy: Characterization of thin wall deposits
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM B		**AM of Metals, Part Design and Modelling - CHAIR: Professor Xiaoyan Zeng**	
16:00	Invited	Ruidi Li	Metallurgical defect control of laser 3D printing and new alloys development: case of Al, SMA, HEA
16:25		Philip Bendeich	Development of numerical models of additive manufacturing of alloys undergoing solid-state phase transformation (SSPT)
16:40		Ming Liu	A modified line heat input model for the thermal-mechanical modelling of selective laser melting
16:55	Keynote	Chris Berndt	Additive manufacturing via thermal spray technologies: transforming science into industrial applications
17:30		Kaijie Lin	Multi-functional bio-inspired integrated thermal protection structures: design, numerical simulation and selective laser melting fabrication
19:00	**APICAM CONFERENCE DINNER – ZINC in Federation Square**		

DAY TWO

TUESDAY 2 July 2019

DAY 2 – ROOM C BUILDING 12.8.02

ROOM C		Additive Manufacturing of Metals (Al Alloys) - CHAIR: Professor Ma Qian	
8:50	Invited	Mingxing Zhang	Grain refinement in an additively manufactured aluminum alloy
9:15	Invited	Xiaoli Wen	The microstructures and mechanical properties of TiB2 reinforced 2024Al composite fabricated by laser solid forming additive manufacturing
9:40		Dina Bayoumy	On process development of high strength Al-Mn-Sc alloy using selective laser melting
9:55	Invited	Biao Chen	Strength and strain hardening of additively manufactured AlSi10Mg alloys
10:20		Lixia Xi	Effect of ceramic particle size on microstructure formation and performance of TiB2 reinforced Al-based composites prepared by selective laser melting
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM C		**Additive Manufacturing of Metals (Al Alloys) - CHAIR: Professor Xiaozhou Liao**	
11:00	Keynote	Mark Easton	Refinement of the microstructure in additively manufactured alloys
11:35		Min Wang	Effects of nano-SiC content on microstructure, phase and mechanical properties of AlSi7Mg alloys fabricated by selective laser melting
11:50		Jiangqi Zhu	Characterization of plastically deformed AlSi10Mg fabricated by selective laser melting
12:05		Qingbo Jia	High temperature high strength Al alloy development for selective laser melting
12:20	Invited	Nick Birbilis	Additive manufacturing of high strength aluminium alloys
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Professor Tresa Pollock -** Structure Evolution Across Build Layers in EB Additive Nickel Alloys **CHAIR: Professor Jianfeng Nie**	ROOM A
ROOM C		**Additive Manufacturing of Metals (Al Alloys) - CHAIR: Professor Prashanth Konda Gokuldoss**	
14:25		Yinghao Zhou	Submicron-TiB2 with Si decorated Al7075 alloy for selective laser melting additive manufacturing
14:40		Abirami Babu	Development of high strength Al-alloys in net shape by additive manufacturing
14:55	Keynote	Peter Collins	On the possibility of real-time techniques to enable property prediction in additive manufactured materials
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM C		**Additive Manufacturing of Metals - CHAIR: Professor Xuanhui Qu**	
16:00	Invited	Chris Wallbrink	Defect analysis in AM components and repairs
16:25		Jun Shimizu	Fabrication of microstructures by electric discharge deposition technique
16:40		Yili Dai	Microstructure and mechanical properties of wire and arc additive manufacturing Zr-alloying low alloy high strength steel
16:55		Diego Corradi	Influence of magnetic arc oscillation on wire arc additive manufacturing deposition efficiency
17:10		Ziping Yu	The strategy for fabricating wire structure parts using robotic wire and arc based additive manufacturing
17:25		Christiane Schulz	Laser metal deposition for adding of wear resistant features
17:40	Invited	Vu Nguyen	Residual stress in additive manufacture

DAY 2 – ROOM D BUILDING 12.10.02

ROOM D		Additive Manufacturing of Metals (Ni Based) - CHAIR: Professor Peter Collins	
8:50	Invited	Zhan Chen	Grain growth during keyhole mode SLM of IN738LC
9:15	Invited	Liang Zheng	The quick response of microstructure and phase change of a Ni-based superalloy powders during single fast heating/cooling cycle
9:40		Chamara Kumara	Laser metal powder directed energy deposition of alloy 718 - modelling microstructure evolution during the process and subsequent heat treatments
9:55	Keynote	Xinhua Wu	New AM alloys and metallurgical issues for Selective Laser Melting (SLM)
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM D		**Additive Manufacturing of Metals - CHAIR: Professor Shoujin Sun**	
11:00	Invited	Qiuge Li	The liquation cracking mechanism of laser additive repaired K465 nickel-based superalloy
11:25	Invited	Wenyong Xu	The oxygen and argon in nickel-based superalloy powder
11:50		Joe Elambasseril	3D characterization of defects in deep-powder-bed manufactured Ti–6Al–4V and their influence on tensile properties
12:05		Yong Chen	Residual stress predicting in selective laser melting of high strength steel considering solid-state phase transformation
12:20	Invited	Baicheng Zhang	Carbon-fiber reinforced Inconel 625 by additive manufacturing
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13.35	**Plenary**	**Professor Tresa Pollock -** Structure Evolution Across Build Layers in EB Additive Nickel Alloys **CHAIR: Professor Jianfeng Nie**	ROOM A
ROOM D		**Additive Manufacturing of Metals - CHAIR: Professor Mingxing Zhang**	
14:25	Keynote	Dipankar Banerjee	Additive repair processes for high temperature materials
15:00	Invited	Joe Elambasseril	Influences of energy density on porosity and microstructure of selective laser melted Al-Cu-Mg-Ag alloy
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM D		**Additive Manufacturing of Metals - CHAIR: Professor Simon Ringer**	
16:00	Keynote	Thomas Niendorf	On the reliability of metallic alloys processed by additive manufacturing
16:35	Keynote	Xin Lin	Low cycle fatigue behavior of Ti-6Al-4V alloy fabricated by high-power laser solid forming additive manufacturing
17:10	Invited	Steven Camilleri	Authentic additive manufacturing
17:25		Erin Brodie	Mechanical properties, microstructure and osteogenesis of selective laser melted TiTa alloys
17:40		Rebecca Murray	Fabrication of a Cold Spray 3D Printed Component that Meets Military Specification
19:00	**APICAM CONFERENCE DINNER – ZINC in Federation Square**		

DAY THREE

WEDNESDAY 3 July 2019

DAY 3 – ROOM A BUILDING 16.1.01 STOREY HALL

8:00	Plenary	**Prof Ingomar Kelbassa -** I AM SIEMENS – Industrialized Additive Manufacturing by Siemens **CHAIR: Professor Tresa Pollock**	
ROOM A		**New Frontiers in Additive Manufacturing - CHAIR: Professor Craig Brice**	
8:50	Keynote	Claus Emmelmann	3D printing – exploiting profitable applications with new technologies
9:25	Keynote	Leon Prentice	Progress in novel titanium powder processes for additive manufacturing
10:00		Philip Walls	Where to from here? A review of the latest additive manufacturing techniques & materials and a look at future possibilities
10:15	Invited	Jonathan Miller	Evaluation of in-process monitoring of laser-based powder bed fusion as a tool for qualification and certification processes
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM A		**New Frontiers in Additive Manufacturing - CHAIR: Professor Kenong Xia**	
11:00	Keynote	Judith Schneider	Advancing manufacturing processes
11:35	Invited	Christian Haase	ICME-based alloy development for additive manufacturing applications
12:00		Dayalan Gunasegaram	Digital twins of additive manufacturing processes: how they add value in an Industry 4.0 economy
12:15	Invited	Yunhui Chen	In situ and operando x-ray imaging of molten pool dynamics and defect formation mechanism in direct energy deposition additive manufacturing
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Professor Huiping Tang -** 3D Printed Orthopaedic Implants in China **CHAIR: Professor David StJohn**	ROOM A
ROOM A		**New Frontiers in Additive Manufacturing - CHAIR: Dr Alex Shekhter**	
14:25	Keynote	Khan Sharp	Materials for defence: opportunities for additive manufacturing
15:00	Keynote	Craig Brice	On the applicability of additive manufacturing for superhero suit fabrication
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM A		**New Frontiers in Additive Manufacturing - CHAIR: Dr Jonathan Miller**	
16:00	Invited	Anton du Plessis	Using x-ray tomography to evaluate the effect of defects on mechanical properties in metal additive manufacturing: a review
16:25	Invited	Jonathan Phuong Tran	Multi-material addaptive topology optimization for additive manufacturing
16:50		Ahmad Zadi-Maad	Development of additive manufacturing for cutting tools
17:05		Federico Bosio	Accelerated optimisation method to process new alloys by laser powder bed fusion

DAY 3 – ROOM B BUILDING 12.5.02

ROOM B		**Additive Manufacturing of Metals - CHAIR: Dr Stefan Gulizia**	
8:50	Invited	Wei Liu	Additive manufacturing of tungsten alloys: manufacturing and performance
9:15	Invited	Prashanth Konda Gokuldoss	Additive manufacturing of metallic materials: age/precipitation-hardening
9:40	Keynote	John S Carpenter	Using high energy x-ray diffraction to probe additively manufactured metals over a range of length and time scales
10:15		Bintao Wu	Wire arc additively manufactured materials: relationships between process andmaterial property
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM B		**Additive Manufacturing of Metals - CHAIR: Dr John Carpenter**	
11:00	Keynote	Peter Lee	In situ synchrotron imaging of additive manufacturing
11:35	Keynote	Tao Sun	In situ synchrotron x-ray study of additive manufacturing processes and materials
12:10		Anna Paradowska	Non-destructive scattering techniques for additive manufacturing
12:25		Jinhan Chen	The effect of linear energy density and hot isostatic pressing on thermal conductivity of additively manufactured pure tungsten
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Professor Huiping Tang -** 3D Printed Orthopaedic Implants in China **CHAIR: Professor David StJohn**	ROOM A
ROOM B		**Additive Manufacturing of Metals - CHAIR: Dr Tao Sun**	
14:25	Invited	Darren Fraser	Effect of energy input during Arcam EBM
14:50		Nima Haghdadi	Microstructure characteristics of electron beam melted Inconel 738
15:05	Keynote	Warwick Downing	Consistently achieving full strength metal 3D printing production parts
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM B		**Additive Manufacturing of Metals - CHAIR: Professor Zhan Chen**	
16:00	Invited	Xiaoqi Chen	Cracking behaviour in direct Laser Metal Deposition (LMD) of Inconel 738 alloy
16:25		Timothy Murray	Development of novel ultra-high strength steels for selective laser melting
16:40		Anthony Rosengren	Why metal 3D printing is disrupting the way we make things
16:55		Bill Lozanovski	Computational modelling of strut defects in SLM manufactured lattice structures
17:10		Arun Ramanathan Balachandramurthi	Microstructure tailoring in electron beam powder bed fusion processing of alloy 718 and associated mechanical properties

DAY THREE

WEDNESDAY 3 July 2019

DAY 3 – ROOM C BUILDING 12.8.02

ROOM C		Additive Manufacturing of Metals - CHAIR: Professor Hamish Fraser	
8:50	Invited	Xiaozhou Liao	Effects of cyclic thermal loadings during 3D printing processes on local microstructure and mechanical properties of a Cantor alloy
9:15		Yongjiang Huang	The characterization of the residual stresses in laser melting deposited CrMnFeCoNi high entropy alloys using neutron diffraction
9:30		Javad Karimi	Selective laser melting of Ti6Al4V: effect of remelting
9:45		Zhiyuan Liu	3D printing metals via plastics: fused filament fabrication of 316L stainless steel
10:00	Invited	Shoujin Sun	Mechanical properties of martensitic Ti6Al4V alloy
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM C		Additive Manufacturing of Metals - CHAIR: Dr Eugene Ivanov	
11:00	Invited	Chunguang Bai	Wire and powder manufacturing process control and defect prediction for 3D printing
11:25		Yangyang Guo	Forming, microstructure evolution and mechanical properties of wire arc additively manufactured AZ80M magnesium alloy using gas tungsten
11:40		Jayesh Modi	Laval nozzle optimisation for Titomic Kinetic Fusion® systems
11:55		Bosley Nguyen	Additively 3D printable high strength aluminum alloys using cold spray additive manufacturing
12:10		Rebecca Murray	Dimensional comparison of a cold spray additive manufacturing simulation tool
12:25		Haozhang Zhong	The β phase evolution in Ti-6Al-4V additively manufactured by laser metal deposition due to cyclic phase transformations
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Professor Huiping Tang -** 3D Printed Orthopaedic Implants in China **CHAIR: Professor David StJohn**	ROOM A
ROOM C		Additive Manufacturing of Metals - CHAIR: Dr Wyman Zhuang	
14:25		Peter King	Additive manufacturing in the solid state by cold spray
14:40		Bastian Fosse	Detection of defects related to the melt pool stability using high-speed infrared camera system for laser beam melting technology
14:55	Keynote	Roger Lumley	AWBell's additive routes for investment castings in the last two decades
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM C		Additive Manufacturing of Metals - CHAIR: Dr Qianchu Liu	
16:00	Invited	Xiaopeng Li	Novel composite materials for additive manufacturing
16:25		Xinni Tian	Hybrid manufacturing (HYAM) method for refined DLDed Ti-6Al-4V microstructure
16:45		Jixin Yang	Anisotropic tensile behavior and microstructure of a near-α titanium alloy fabricated by electron beam selective melting
17:00		Shanqing Xu	A review on additive manufacturing of metal: surface roughness and surface finishing
17:15		Johnson Jacob	Solid-state transformations in TiAl during additive manufacturing by LENS

DAY 3 – ROOM D BUILDING 12.10.02

ROOM D		Advanced Characterization Techniques and Feedstocks - CHAIR: Dr Rebecca Murray	
8:50	Invited	David Myint	Powder to product: tools for quantitative characterisations of starting materials and finished products in 3D printing
9:15		Anthony Antic	Characterisation of pharmaceutical powders for use in binder jetting printers
9:30	Invited	Edward Lui	Mechanical and fatigue properties of laser metal deposited Ti-6Al-4V with fully lamellar microstructure
9:55		Darpan Shidid	Mechanical characterisation of SLM lattice structures for orthopedic applications
10:10		Jiexiong Wang	Temperature profile and residual stress investigation of Ti-6Al-4V manufactured by direct laser metal deposition
10:30	Morning Tea: Building **80**.03.06 & **80**.03.05		
ROOM D		Additive Manufacturing of Ceramics and Sensors - CHAIR: Dr Edward Lui	
11:00		Rance Tino	Additive manufacturing of radiotherapy phantoms in radiation oncology
11:15		Maxence Bourjol	New applications of hybrid multi-materials and smart design
11:30		Shareen Chan	Particle-stabilized emulsions as pastes for 3D printing multiscale porous ceramics
11:45		Tatevik Minasyan	MoSi2 based composites by selective laser melting
12:00	Invited	Yongxiang Li	3D LTCC fabrication for wireless sensors
12:40	Lunch: Building **80**.03.06 & **80**.03.05		
13:35	**Plenary**	**Professor Huiping Tang -** 3D Printed Orthopaedic Implants in China **CHAIR: Professor David StJohn**	ROOM A
ROOM D		Additive Manufacturing of Metals - CHAIR: Professor Yongxiang Li	
14:25		Matthias Bringezu	Implementing metal additive manufacturing - a practical guide
14:40		Timothy Teske	Applications of additive manufacturing in a defence research and development context
14:55	Invited	Meng Wang	Defects formation and microstructure evolution of TC4 alloy with multi-beam selective laser melting
15:20		Ryan Demott	The effects of thermal history on microstructural evolution in additively manufactured Ti-6Al-4V
15:30	Afternoon Tea: Building **80**.03.06 & **80**.03.05		
ROOM D		Additive Manufacturing of Metals - CHAIR: Dr Dong Qiu	
16:00	Invited	Shenglu Lu	Recent developments in 3D binder jet printing of metallic materials
16:25		Zhenhua Li	Application of selective laser melting ferrous lattice as copper matrix composite reinforcement
16:40		Ramin Rahmani Ahranjani	3D printing technology to address tribological applications
16:55		Shuai Liu	Effects of processing parameters on properties of selective laser melting Mg–Al-Zn alloy

APICAM2019

RMIT UNIVERSITY

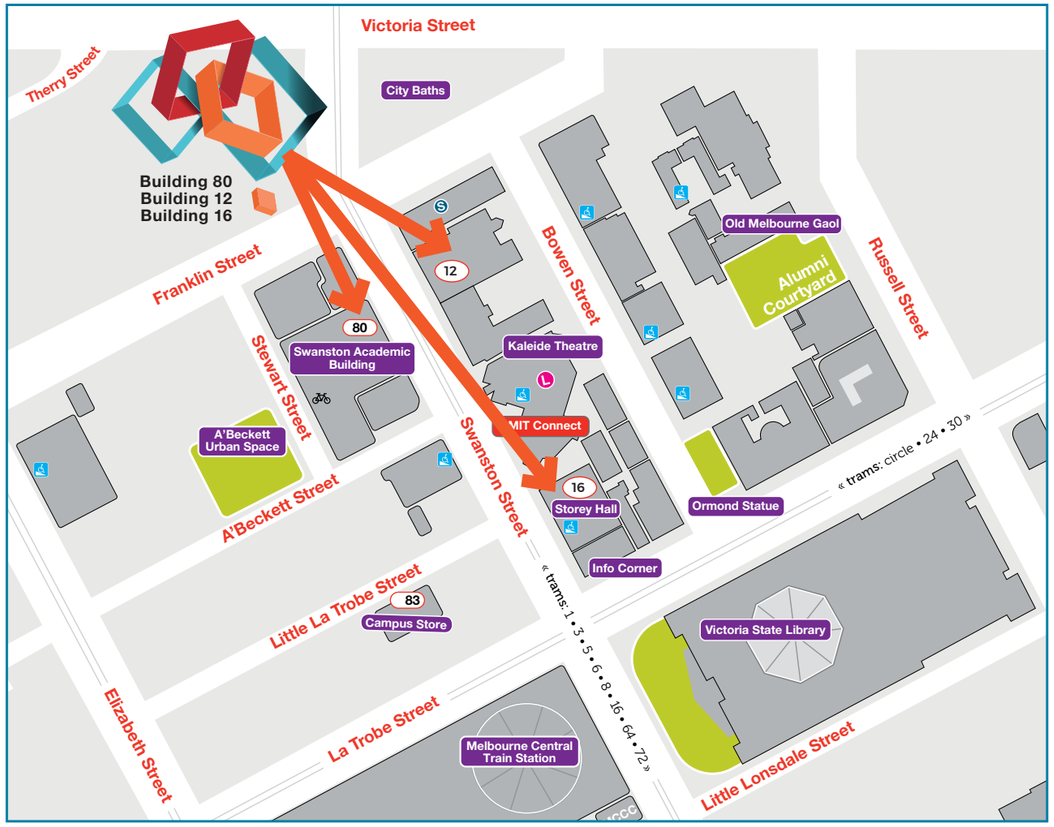
Getting To RMIT

The University is located in the heart of the CBD, making it walking distance or a short tram or train ride from most of the CBD's landmarks and accommodation. Driving yourself to the venue isn't recommended as parking can be difficult to find and traffic is always a problem.

No matter where you are in Melbourne all you have to do is get on a City Loop train and get off at Melbourne, Central station.

If you're coming by tram, most north-south Yarra Trams run along Swanston Street (routes 1, 3, 5, 6, 8, 16, 64, 67 and 72). For Elizabeth Street services (routes 19, 57, 59), get off at Melbourne Central and walk one block to Swanston Street.

If you're travelling east-west along Flinders Street (routes 48, 70 and 75), Collins Street (routes 109 and 12) or Bourke Street (routes 86 and 96), just jump off at Swanston Street for connecting trams.



Asia-Pacific International Conference on Additive Manufacturing

APICAM2019

1 July - 3 July 2019

RMIT University, Melbourne

Materials Australia

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