The Monash Centre for Additive Manufacturing takes their most recent discoveries in alloy and metallurgical science and finds ways to apply them in real world applications – working with partners who need stronger, lighter, more cost effective components. Our global aerospace industry partnerships are profiting from their relationship with us, as we provide bespoke solutions, create solutions to reduce the carbon footprint, manufacture new designs and complex geometries, produce new materials with improved balanced properties to achieve higher fuel efficiency and performance, increase their global competitiveness and design new processes to reduce manufacturing waste.
Mission statement: To develop stronger, lighter, more durable and stable alloys that are able to be produced through more efficient and cheaper manufacturing processes, with lower energy consumption and CO₂ emission.

Contact
Director
Prof Xinhua Wu

Prof Xinhua Wu is the Director of ARC Centre of Excellence for Design in Light Metals, Australia, Founding Director of Monash Centre for Additive Manufacturing (MCAM) and Australia – China Joint Research Centre for Light Metals. Prof Wu graduated with a PhD at the University of Birmingham, UK and she was a Professor in Aerospace Materials at Birmingham until Jan 2011. She is also a Chartered Engineering and Fellow of Institute of Materials, Mining and Minerals (IoM3) and collaborates extensively with European aerospace industry. Her research covers alloy development and manufacturing process development including Ti alloys and other high temperature materials, net-shape HIPping (hot isostatic pressing), Additive Manufacturing using blown powder and laser powder bed technologies. She has published about 120 journal papers and is inventor to 12 US and EU patents. In 2008 she was awarded the prestigious Ti award by IoM3 in recognition of outstanding record of world-class research in titanium and its alloys. She is also instrumental in establishing two companies Amaero Engineering Pty Ltd Australia who supplies 3D printed components, and Falcontech, China, who supplies aerospace graded Ti powders, 3D printed Ti components and Ni alloy powders.

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Where new materials meet manufacturing challenges
Additive manufacturing is the next revolution in manufacturing, making it possible to answer age old challenges and create innovative solutions. The process of additive manufacturing ‘prints’ new components layer by layer. This technology uses metal and alloy powder to build components not much wider than a human hair. It allows creation of components with new designs and complex geometries that were near impossible to make by traditional forms of manufacturing.

Building possibilities
We work with partners to invent bespoke solutions to unique manufacturing challenges. Using our network with the research centres situated in the Clayton precinct and our broader Australian and international network, we are able to draw on a number of different cutting edge capabilities and expertise and apply them in novel and innovative ways to provide new opportunities for manufacturers.

Creating the components of opportunity
We have a state-of-the-art facility consisting of the latest technology for manufacturing specialised and complex components from a wide range of metal powders (Ti, Ni, Al alloys and steel).

- Selective laser melting machine (EOS), which is capable of producing high precision and complex, structured parts.
- Largest selective laser melting machine (Concept Laser) in the southern hemisphere, pushing the boundaries of additive manufacturing.
- Direct laser deposition machine (Trumpf), which is capable of rapid materials development and large, scale part manufacturing and repair.
- Hot Isostatic Press (Avure) with unique high temperature and pressure combinations.