PhD studentship (Full-time)

	Yuyuan Zhao
	Microstructural evolution and its relationship to properties of spray formed high performance aluminum alloys during thermomechanical process

Requirements:

Degree:

Funding:

Project Description:

The advanced spray forming is a type of fast solidification technology, resulting in uniform microstructure of the materials, which has some difference from the traditional melting solidification process. As a result, the response of the spray formed aluminum alloy to subsequent heat treatment and deformation could vary greatly, and the long-term acceptable processes for traditional melting solidification alloy are not suitable for the spray formed alloys. It is urgent to fully understand the microstructural evolution during solidification, heat treatment and deformation processes, because we need to establish the relatively suitable processes for spray formed aluminum alloys with characterized microstructures. The project will explore the recrystallization mechanism, its relationship to second particles existed, grain crystallographic orientation, precipitate etc., in order to design the alloy and thermomechanical process.

Supervisor Profile:

Principal Supervisor:

Dr Sun is currently the Senior Associate Professor of Department of Mechatronics and Robotics. She has broad academic working experience in China and Singapore for more than 20 years.

She has extensive research experience in 3D Printing for Healthcare Product Design, 3D Customized Food Printing, Biomimetic Scaffold Fabrication, Intelligent Process Monitoring, and Mechatronics & Instrumentation. Along with nearly 15 research projects sponsored by Singapore and China government agencies, and industries.

JITRI co-supervisor:

Dr Jia is currently a professor at Nanjing Tech University. In 2010-2021, he worked in Chongqing University, and managed many intentional collaboration projects including

Stragetic University Program on Light Metals Technology under the Research Council of Norway, development and testing of new cast aluminium alloys for elevated temperature applications under the French-Norwegian Foundation, and Impurities in metallurgically manufactured multicyrstalline silicon for solar cell under the Research Council of Norway
He has extensive research experience in alloys, transmission electron microscopy (tem), microstructure, material characterization.

How to Apply:

-
-
-
-
-
-
-