

Materials development for Aerospace applications

Monday, 2 December 2019 14:00 (20)

This talk will focus on a synchrotron experimental programme developed for aerospace materials design and testing. The unique properties of the beamlines available at the Australian synchrotron facility have been applied in various modalities. A brief overview of current and future work is presented based on case studies developed on two beamlines,

1. A dedicated synchrotron Small Angle Scattering (SAXS), Wide Angle Scattering (WAXS) fibre testing capability (Serial fibre X-ray scattering). The experimental design has been optimised for measurement of weakly scattering monofilament fibres with short acquisition times. Based on a scanning fibre-by-fibre measurement protocol, the structural parameters, density and relative distribution along the length of a fibre can be mapped for the first time. This technique is used to identify the “weakest link” microstructures and serves as an optimisation tool for fibre processing.

1. The Imaging and Medical beamline for polychromatic/monochromatic diffraction measurements. High energy diffraction measurements are used to assess the build microstructure of 3D printed (Laser Engineered Net Shaping (LENS) deposition) Ti5553 metals. Application of spatially resolving measurements has been used to study the bi-modal grain size distribution introduced by the AM build process.

Speakers Gender

Male

Travel Funding

No

Level of Expertise

Expert

Do you wish to take part in the poster slam

No

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