



The Effect of Microstructure and Strain Rates on the Mechanical Properties of Additively Manufactured Metallics

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Message from the Guest Editors

Dear Colleagues,

The microstructure of additively manufactured metallics varies as a function of process parameters, types of metallics, cooling rates and post-processing. This in turn impacts their mechanical properties. The mechanical response of additively manufactured metallics is dependent on the imposed strain rates, which affect their dislocation density and microstructure and therefore mechanisms of failure.

Metallics' response to AM is a function of the optical, thermal and physical properties of the powder and the melt produced. Whilst most alloys used in AM are prealloyed, there is a growing interest in in situ alloying. The work conducted on in situ alloying highlights some degree of loss of the alloying metals, and partial prealloying is recommended in such cases.

This Special Issue will focus on the evolution of different microstructures and resulting mechanical properties of built parts as a function of the AM build process, composition of in situ alloying powders, type and volume fraction of reinforcing phases, post-treatment and imposed strain rates.





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Message from the Editor-in-Chief

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