

Accelerating Materials and Process Development in Additive Manufacturing



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The adoption of additive manufacturing technologies takes a significant time in developing new materials, their process parameters and the post-processing routes in order to achieve the required performance. Useful tools, including in-situ alloying, high throughput process optimisation, process monitoring, and physics-inspired optimisation using artificial intelligence, have been recently shown to enable the development to be cut short from years to months, if not less. The talk will explore the utility of some of these tools that the Advanced Materials & Processing Laboratory (AMPLab) has been developing and exploring. Case studies involving both structural and functional metallic materials will be presented and discussed.

Bio: Professor Moataz Attallah holds a chair in advanced materials processing at the School of Metallurgy and Materials University of Birmingham, where he leads the Advanced Materials & Processing Lab (AMPLab). His research focuses on metallic materials processing, with an emphasis on laser-based additive manufacturing, AM post-processing strategies, and novel applications of metal AM in the aerospace, nuclear, defence, motor racing, space, and telecommunications sectors. He sits on the advisory board and provides consultancy to companies and universities in Europe, North America, the Middle East and Asia. He co-authored over 200 scientific reports and 3 book chapters, as well as being a co-inventor on 5 granted patents.



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