

Advances in Modeling and Experimental Analysis of Laser Powder-bed Fusion of Ni-based Alloys

This presentation will provide an overview of research programs related to laser-based metal additive manufacturing (AM) processes being conducted at the Multi-Scale Additive Manufacturing (MSAM) of the University of Waterloo. In particular, a novel integrated statistical/experimental methodology developed for process recipe development for continuous and modulated laser powder-bed fusion (LPBF) systems will be discussed. In addition, preliminary results of a phase-field model deployed for non-equilibrium LPBF of Ni-based alloys will be presented and discussed.