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Title: The Use of High-Throughput Methods for Signature Definition in Metal Additive Manufacturing

Abstract:

High-throughput design and experimental techniques have been developed to define process windows in laser powder bed fabrication (LPBF) metal additive manufacturing (AM) techniques. A dimensionless number with universal scaling capabilities guide the design parameters for the AM process. Key structural signatures in the process include porosity as well as the scale of the microstructure. Examples of the high-throughput technique coupled to signatures of mechanical response in both quasi-static and dynamic conditions will be highlighted.