

Special Issue

Additive Manufacturing Processes: Modeling, Monitoring, Anomaly Detection and Control

Message from the Guest Editors

Additive Manufacturing (AM) has become a key driving force for technological upgrading in aerospace, biomedical devices, energy, and other strategic high-end industries, and plays a vital role in promoting the digital and intelligent transformation of modern manufacturing. However, AM involves complex multi-physics coupling and dynamic thermal-mechanical evolution, with obvious instability and randomness in the forming process. Problems such as internal defects, dimensional deviation, and performance inconsistency often occur, which seriously restrict its large-scale and high-reliability application. To tackle these bottlenecks, precise modeling, in situ monitoring, intelligent anomaly detection, and closed-loop control of AM processes are urgently needed. This Special Issue seeks high-quality works focusing on modeling, monitoring and control of AM processes. Topics include, but are not limited to, the following:

- Mechanism-based and data-driven modeling of AM processes;
- Sensing systems and data processing algorithms for AM process monitoring and anomaly detection;
- Closed-loop control systems for AM processes;
- Applications of artificial intelligence in the above topics

Guest Editors

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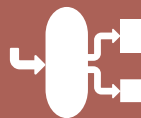
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