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Recent Advances in Additive Manufacturing Processes: From Material Symmetry to Performance Evaluation

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Message from the Guest Editors

Dear Colleagues,

The full range of uses for symmetry in material structuring by additive manufacturing (AM) processes has not yet been discovered in terms of its potential in driving the performance of designed parts. According to an optimized selection of AM process parameters for a wide variety of materials, we can expect to see tremendous effect on the mechanical, thermal and transfer properties . Each of the AM process has a different way in tuning the material structure according to discontinuities that are created during the process of layer-by-layer building. This Special Issue focuses on the link between the material symmetry / asymmetry generated by AM processes and the achieved performance. This Special Issue welcome both numerical and experimental technical papers, as well as review contributions. We hope that this Issue will provide an opportunity to share the most recent advances in AM and contribute to further unveiling the potential of AM processes in order to tune the material performance at scales of different length while understanding the implications of material symmetry in AM processes.

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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