
Guest editorial: Preface of special issue advanced manufacturing technologies in aerospace engineering

In the ever-evolving landscape of aerospace engineering, the pursuit of impeccable component quality and the incorporation of cutting-edge materials have elevated the demand for advanced manufacturing technologies. The challenges posed by these requirements have spurred a crucial shift towards innovative manufacturing processes. This special issue, titled “Advanced Manufacturing Technologies in Aerospace Engineering,” to address these challenges has led to the exploration and implementation of an array of advanced manufacturing processes, marking a paradigm shift in aerospace engineering. The eminent guest editors for this special issue bring a wealth of expertise in aerospace manufacturing technologies. With a distinguished career and numerous contributions to the field, Professor Wenfeng DING (Nanjing University of Aeronautics and Astronautics), Professor Yucan FU (Nanjing University of Aeronautics and Astronautics), Professor Qinglong AN (Shanghai Jiao Tong University), Professor Jinzhi LU (Beihang University), Professor Guijian XIAO (Chongqing University), Professor Chongjun WU (Donghua University), Professor Ning QIAN (Nanjing University of Aeronautics and Astronautics), Dr Dongdong XU (Tongji University) and Dr Xiangyu ZHANG (Tsinghua University) guide this issue with a discerning eye, ensuring a comprehensive exploration of the latest developments, theories and innovations in advanced manufacturing for aerospace engineering.

This special issue contains three review papers and six research articles delving into the realm of diverse material processes, encompassing grinding, ultrasonic vibration-assisted machining, jointing and 3D printing. The aerospace industry’s quest for excellence is not without global recognition, drawing researchers worldwide to explore and contribute their insights. While remarkable investigation results have been published, unveiling the potential of advanced manufacturing techniques, a veil still shrouds certain mechanisms, particularly in the safety-critical aerospace domains. To expedite the comprehension of material removal processes, high-performance machining, surface generation and/or alteration, carbon footprint reduction in manufacturing and enhancement of workpiece service performance, this special issue has dedicated attention to these critical areas.

This special issue is a focused exploration into newly developed advanced manufacturing technologies, unveiling mechanisms and theories behind machining difficult-to-cut materials and introducing innovative high-performance machining techniques. We extend a warm welcome to related research that complements these themes. Through the collective

© Wenfeng Ding, Yucan Fu, Qinglong An, Jinzhi Lu, Guijian Xiao, Chongjun Wu, Ning Qian, Dongdong Xu and Xiangyu Zhang. Published in *Journal of Intelligent Manufacturing and Special Equipment*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>



contributions presented in this issue, we aspire to propel and inspire the continued advancement of advanced manufacturing technologies in aerospace engineering.

Wenfeng Ding and Yucan Fu

Nanjing University of Aeronautics and Astronautics, Nanjing, China

Qinglong An

Shanghai Jiao Tong University, Shanghai, China

Jinzhi Lu

Beihang University, Beijing, China

Guijian Xiao

Chongqing University, Chongqing, China

Chongjun Wu

Donghua University, Shanghai, China

Ning Qian

Nanjing University of Aeronautics and Astronautics, Nanjing, China

Dongdong Xu

Tongji University, Shanghai, China, and

Xiangyu Zhang

Tsinghua University, Beijing, China