

Preface

Laser-based manufacturing is attracting the attention of a number of researchers across the globe due to its unique characteristics like high power intensity, flexibility, easy control, high precision and good repeatability. Fuelling this interest is the fact that lasers are quite suitable for the micromanufacturing of hard and difficult to machine materials. They can be used for almost all important manufacturing processes including forming, joining, machining, additive manufacturing (AM) and surface treatment. A wide range of materials including metals, polymers, ceramics, composites and bio-cells can be processed using lasers.

Withing industry, lasers are now recognized as very important tools for material processing, especially for repair and maintenance. Its use is also recognized in the field of non-contact and highly accurate sensing, which is one of the most important requirements for high quality decentralized production. Still, industries are still looking for solutions for low efficiency, slow processing of materials, high set up costs and damage to the workpiece materials; consequently, a large number of researchers are working across the globe to address these issues; especially as it is expected that more industries will adopt lasers in actual production in the near future.

To support these trends I am pleased to present this special issue from selected papers presented in the 8th International & 10th Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering (AFTMME 2020) held in association with Society of Materials and Mechanical Engineers (www.somme.in) from the 19-20 December 2020. This special issue consists of a total of six peer-reviewed research and review articles selected from AFTMME 2020. The papers comprised in this special issue are submitted by reputed academicians and researchers on a range of topics in laser material processing. These include laser forming, transmission welding, tissue printing, hybrid machining, laser assisted metal joining, coating and AM. These papers cover experimental, numerical and analytical analysis.

Editing this special issue has been a privilege and a pleasure. I am sure that the papers presented herein will provide valuable information to the readers,

especially as these papers mainly focus on addressing the issues faced by the end users during laser material processing. I sincerely acknowledge the time and efforts contributed by authors and reviewers for bringing out this special issue. Finally, I wish this special issue to be successful and useful to all the working engineers, researchers and academicians.

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