Numerous manufacturing processes use the controlled addition, removal, or generation of heat to improve manufacturing performance. This is important for processing advanced difficult-to-machine materials, developing new hybrid methods, increasing tool life, and improving part quality. Correspondingly, the addition or removal of heat from materials themselves can improve their performance, wear resistance, and affordability.

The goal of this special issue is to capture important ongoing work and recent trends in this emerging field of thermally assisted manufacturing by providing a collection of articles covering various manufacturing processes. It features a wide range of research at both macro and micro scales, such as welding and joining, laser ablation, surface treatment, additive processes, thermally assisted machining, thermally assisted forming, thin coating, and polishing. The papers also present innovative experimental studies and comprehensive modeling efforts. We hope it provides collective, useful information to the researchers and practitioners working in this field.

We were very pleased by the positive reaction to our call for papers and the large number of submissions we received in response. This made a timely peer-review process challenging, however. Despite the tight schedule, many reviewers provided very timely responses, which enabled us to select high-quality manuscripts.

I would like to thank all the reviewers and authors for providing timely reviews and revisions, so that this special issue could be published within the original time frame. Special thanks go to my co-editors, Professor Shuting Lei and Alessandro Fortunato, who provided assistance whenever needed. Lastly, our thanks go to JMSE’s Editor, Professor Larry Yao, and his assistant, Ms. Corinna Fales, for their support and assistance.

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