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Editorial

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Additive manufacturing—also known as 3D printing—is a rapidly growing production technology that offers a flexibility in geometry and materials unknown to classical techniques. For metallic products it can be stated that, compared to the common subtractive shaping techniques, such as machining, additive manufacturing combines generation of material and shape in one process line, which means that the manufacturer of the product should be an expert in both aspects.

This, however, implies the acquisition of knowledge in several fields, for which scientific congresses are a highly effective tool, since they bring together specialists from various areas who present their latest findings and exchange experience and opinions. ASMET has been successfully organizing the "Metal Additive Manufacturing Congress MAMC" since 2014 to enhance communication between these specialists. In 2021 we had the chance to hold this congress once more physically, "back to normal", after an online congress in 2020, which was quite successful, too, but nevertheless lacked the easy communication and personal touch of physical meetings. All delegates very much enjoyed both the high level of the scientific-technical presentations and the hospitality at the social programme. With its broad participation from industry as well as academia, MAMC once more has proven its leading standing in the field of international AM events.

In the current issue of BHM, several contributions to MAMC-2021 are presented. They focus on "direct" methods, in which case components are generated by fusion processing of powders, which is still the dominant variant of metal additive manufacturing. The range of papers starts from characterization of the powders used, for which, in case of powder-bed systems, spreadability is an essential requirement, and continues to the building process itself, by direct energy deposition or by laser powder bed fusion, in which latter case different ways of operating the laser are described. The topic of cracking, which is a consistent threat to the highly non-isothermal "direct" methods, is discussed on a nonconventional tool steel. One contribution gives insights into processes based on wire-arc welding, which, due to their potentially high throughput, have gained increasing interest. Finally, progress in simulation of AM processes for production of highly porous structures is described, indicating the close coupling of simulation and experiment increasingly common in additive manufacturing.

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