



Editorial

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This special issue for the Progress in Additive Manufacturing (PiAM) journal contains specially selected, blind-reviewed papers that were presented at the 14th International Conference on Advanced Computational Engineering and Experimenting (ACE-X 2021) held in St. Julian's, Malta from July 4th to 8th, 2021. The ACE-X conference is an annual event taking place at historic cities in Europe. The goal of this vibrant conference is to provide a unique opportunity for delegates to exchange information and present their latest results. Young scientists and experienced researchers had the opportunity to interact and discuss relevant issues on engineering research. The special issue contains revised versions of papers that were submitted to a special session focusing on topics related to Additive Manufacturing, including but not limited to aspects of material properties, material characterization, quality assurance, applications, products, and also decentralized on-demand fabrication systems. We would like to express our sincere appreciation to the Progress in Additive Manufacturing journal, in particular to Silvia Schilgerius from Springer and the Chief Editor Dr. Eujin Pei who made this special issue possible. We also express our heartfelt thanks to the Conference Chair, Professor Dr.-Ing. Andreas Öchsner and Co-Chair, Professor Dr.-Ing. habil. Dr. h. c. mult. Holm Altenbach for enabling the special session on Additive Manufacturing. Our next ACE-X conference will take place in Florence, Italy in July 2022 and we look forward to your participation. Please contact us if you require further information.

Dr. Leonhard Hitzler and Professor Markus Merkel are the Guest Editors of this Special Issue. Dr. Leonhard Hitzler

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is a Post-Doctoral Researcher at the Institute of Material Science and Mechanics of Materials at the Technical University of Munich (Germany). He dedicates his research efforts to the deliberate alteration of macroscopic material properties through microstructural modification, predominantly by means of Additive Manufacturing. Important aspects of his work are the handling of the fluctuating nature and to elaborate ways to utilize the designing capabilities of the bulk material properties as an advantage. He received his Ph.D. in 2018 from the Griffith University in Australia for his thesis on “The Anisotropic and Inhomogeneous Nature of Additively Manufactured Metals, and the Application of Selective Laser Melting in Dentistry”. Prior to this, he obtained his Masters and Bachelor Degree in Mechanical Engineering at the Aalen University of Applied Sciences, Germany. Before entering the field of Additive Manufacturing, Dr. Hitzler's research activities were in the design of modular and scalable plug-and-play electric driven axis modules for electric and hybrid vehicles.

Professor Markus Merkel at Aalen University of Applied Sciences (Germany) first studied mechanical engineering at the University of Erlangen-Nuremberg, Germany, and received his PhD in 1998. After a professional career at General Motors (GM), he became full Professor at Aalen University at the Department of Mechanical Engineering. His main field of interest is the design and manufacturing of lightweight metal structures. As a young scientist, he investigated light weight structures with a special focus on new materials. Using methods of virtual product development, parts and components could be designed with optimized mechanical and thermal properties. The implementation of virtual products was often limited by missing manufacturing processes. Today, Additive Manufacturing enables freedom of geometry and promising ideas can be realized for many engineering applications. At the campus of Aalen University, Additive Manufacturing of metal parts is enabled by networked facilities for powder feedstock production, laser beam powder bed fusion, process control, quality assurance and material characterization at a microscopic and macroscopic level. As a regular attendee to all thirteen

ACE-X-conferences, Professor Markus Merkel initiated a special session related to Additive Manufacturing topics in 2015.

Dr. Leonhard Hitzler
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Guest Editors

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