

Advanced Manufacturing

Session Co-chairs: Yong Chen, University of Southern California, and Xinyu Shao, Huazhong University of Science and Technology

Abstract

Manufacturing has been a big contributor to improved quality and sustainability of human life. China and the U.S. are the world's two largest manufacturing nations, accounted for nearly 40% of world manufacturing in 2012. In the past decades manufacturing has become more competitive. In the future advanced manufacturing is expected to play a central role in manufacturing activity. According to a recent report by the President Council of Advisors on Science and Technology, *Advanced Manufacturing* is "a family of activities that depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences." This session will provide a forum for participants to know some recent advanced manufacturing developments in U.S. and China, and to discuss future innovative technologies in both products and processes for future collaborations.

Advanced manufacturing involves both new ways to manufacture existing products, and the manufacture of new products emerging from new advanced technologies. Our first speaker, William King, will discuss digital manufacturing, the use and coordination of information, automation, computation, software, sensing, and networking in manufacturing. Our second speaker, Yan Chen, will discuss origami structures and their engineering applications. Our third speaker, Shaochen Chen, will discuss bio-manufacturing and some emerging products due to the recently developed nano/micro-technologies. Our fourth speaker, Dazhi Wang, will discuss the electrohydrodynamic jet-based micro/nano fabrication technology, polymer micro/nano systems fabrication technology, and their applications.