Editorial

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The demand for micro (1–500 μm) and nano (1–500 nm) products with high aspect ratios and superior surfaces has been rapidly increasing in aerospace, automotive, medical, optical, and micro-electronics packaging industries. There is a growing need for fast, direct, and mass manufacturing of miniaturised functional products from metals, polymers, composites, glass, and ceramics. Unlike established technologies to produce semiconductor products (typical for electronics industry) involving silicon and gallium or the adaptation of that technology to biomedical applications (BioMEMS), technologies for mass manufacturing of meso/micro parts and components in metal alloys, polymers and ceramics are still under development, and present a number of research issues and challenges. This special issue of the *International Journal of Nanomanufacturing* (IJNM) includes research articles related to recent advances in experimental methods, numerical modelling and analysis of micro/nano manufacturing processes. This issue includes six papers that address the issues associated with micro/nano manufacturing processes. A brief summary of the main contributions is discussed below.

The first article written by Desai and Lovell focuses on direct write manufacturing process and presents a computational fluid dynamics model for revealing a thorough understanding of the transport phenomena associated with the droplet formation. This study could be useful in understanding of fabrication of free-form miniaturised devices in three-dimensional spaces. Next four articles utilise numerical modelling for tool based nano machining, chatter in microdrilling, electrochemical discharge micro-welding, and laser micro/nano machining, respectively. Woon et al. presents an arbitrary Lagrangian-Eulerian process model for tool-based nanomachining which predict plastic deformations exerted by the cutting tool edge radius. The surface generation issues are also discussed. Novakov and Jackson provide an overview of chatter modelling in micro and macrodrilling processes. Kapare et al. present finite element formulation based on transient thermal model for weld bead formation in electrochemical discharge micro-welding. They have investigated the effects of wire diameter, applied voltage and

type of electrolyte on temperature distributions with proposed model. Lee and Özel present an experimental method based on laser hole area modulation to fabricate three-dimensional spherical and elliptical objects., Finally, Tani et al. presents a numerical model for laser plasma pluming to simulate laser ablation of copper.

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