Editorial

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Biographical notes: Tuğrul Özel is an Associate Professor of Industrial and Systems Engineering and the Director of Manufacturing and Automation Research Laboratory (MARL) at Rutgers University. He received his PhD in Mechanical Engineering from The Ohio State University in 1998. His current research interests include advanced manufacturing, precision/micro-machining, laser-based additive manufacturing, computational modelling of manufacturing processes, and micro-manufacturing. He has extensive experience in teaching and researching about high speed machining, manufacturing processes and systems and manufacturing automation. He has been editor, guest editor, reviewer, and editorial board member for several international journals and member of scientific committee for many international conferences. He has published over 120 refereed articles in international journals and conferences.

Petr Kolář is Head of Department of Production Machines and Equipment and Research Center of Manufacturing Technology at Czech Technical University in Prague (CTU). He received his PhD in Production Machines and Equipment from CTU in 2008. His current research interests include machine tool dynamics, modelling and simulation of machine tool structures, spindles and tooling systems, application of non-conventional materials (composite and hybrid structures), simulation and optimisation of machining technologies. He has experience in teaching and researching about machine tool structural properties, process-machine-interaction and manufacturing automation. He has been reviewer for several international journals and member of scientific committee for many international conferences.

This special issue of the *International Journal of Mechatronics and Manufacturing Systems* (*IJMMS*) includes five research articles related to advances in sustainable manufacturing processes, technology, and systems. An overview of the main contributions presented in this special issue is discussed below.

In this special issue, high speed machining of nickel-based alloys, a sustainable manufacturing technology, that would enable reduced processing time and increased energy efficiency by replacing sluggish broaching processes with high speed milling in roughing of nickel-based alloyed turbine disks in aerospace industries has been presented by highly distinguished researchers in this field.

Abrasive manufacturing processes amount to a significant portion of metal part manufacturing operations, a modelling approach for identifying ploughing versus cutting regimes for improved process energy and utilisation during abrasive material removal has presented. Such modelling works provide much needed insight for sustainable abrasive manufacturing processes.

Machine tool components such as spindles and tool holding systems constitute a substantial share in energy spent during metal machining operations. Precision spindle design and fabrication improves the energy utilisation and sustainability. The work presented in this special issue on modelling and vibration analysis of machine tool spindle system that has been discussed by researchers from an internationally renowned research institute provide much detailed understanding for modern machine tool spindle systems towards establishing energy-efficient and sustainable machine tool technology.

Intelligent control strategies provide noteworthy energy utilisation and processing time minimisation improvements for modern machine tool systems. The special issue also includes an excellent research article on machine tool control methodologies for automated five-axis numerically controlled machining by highly reputable researchers.

Finally, a system level view is required for improved energy efficiency and successful implementation of sustainable manufacturing processes and technology. A superb research article on decision support systems for selection of process plans by highly important researchers in their field has been presented with brilliant demonstrations of the methodology proposed.

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