Editorial

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Biographical notes: Zhiyong Chang is currently an Associate Professor in the School of Mechanical Engineering at the Northwestern Polytechnical University. He is a well-known expert on CAD/CAE/CAM. His research areas cover computer-aided structural design, computer-aided geometrical design, computer-aided manufacturing, design automation, multi-axis machining path planning and optimisation, integration of machining and measurement, intelligent machining and assembly. In the past decade, he has published over 100 journals and conference papers, edited and published three text and technical books.

Ming Luo received his PhD from the Northwestern Polytechnical University, China in 2012. He is currently a Research Scientist in the Key Laboratory of Contemporary Design and Integrated Manufacturing Technology at the Northwestern Polytechnical University, Ministry of Education, China. His research areas cover CAD/CAM, intelligent machining, and machining dynamics. His research is well funded by the National Natural Science Foundation of China and the industrial companies. He is an invited reviewer for many international journals, e.g., *Mechanical Systems and Signal Processing*, *International Journal of Machine Tools and Manufacture*, *Computer-Aided Design*, *IEEE/ASME Transactions on Mechatronics*, *International Journal of Advanced Manufacturing Technology* and *Chinese Journal of Aeronautics*.

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Machining processes are widely used in industry. The modelling of machining process is to explore the fundamental laws of material machining, and then machining parameters can be optimised in order to improve the process, both in efficiency, accuracy and surface quality. This special issue contains selected papers that reflect the latest progress in machining process modelling and optimisation.

The uncut chip thickness is crucial to determine cutting forces, and the cutting forces induce the deflection of cutters and workpieces, resulting in low precision even poor surface quality due to chatters. This issue presents articles which calculate the uncut thickness for the cutter with non-uniform helix angle and complex toolpath; model the

stiffness of the processing system and its effects on machining errors; and the dynamic model of the chatter system in hard turning.

The special issue includes an investigation of the relationship between cutting forces and cutting temperatures in high speed milling of hardened steel. An investigation on the surface roughness of gears in terms of material removal rate in micro-WEDM is included. A paper related to the measurement and evaluation of tool wear is also covered.

The papers were selected from and recommended by the International Conference on High Speed Machining 2016 (ICHSM 2016) held by Northwestern Polytechnical University in Xi'an, China. The quality of these papers has been significantly enhanced by the constructive comments given by the distinguished reviewers. The guest editors would like to thank all the authors and reviewers who enable us to compile this special issue dedicated to machining process modelling and optimisation.