
Editorial

Georgios P. Petropoulos

Department of Mechanical and Industrial Engineering,
University of Thessaly, Pedion Areos,
383 34 Volos, Greece
E-mail: gpetrop@mie.uth.gr

Wit Grzesik

Department of Manufacturing Engineering
and Production Automation,
Opole University of Technology,
45-271 Opole, Poland
E-mail: w.grzesik@po.opole.pl

J. Paulo Davim

Department of Mechanical Engineering,
University of Aveiro,
Campus Santiago, 3810-193 Aveiro, Portugal
E-mail: pdavim@ua.pt

Biographical notes: Georgios P. Petropoulos received his BSc in Physics and his PhD in Mechanical Engineering from the Aristotle University of Thessaloniki, Greece. Currently, he works in the Department of Mechanical and Industrial Engineering at the University of Thessaly, Greece, and is Director of the Manufacturing Processes Laboratory in this department. He is interested in Manufacturing Engineering, Metrology and Tribology and has published more than 100 papers on these topics in international journals and international conference proceedings. He is an editorial board member and serves as reviewer in international and national journals, as well as advisory member in several conferences.

Wit Grzesik has received his PhD and DSc Degrees in Mechanical Engineering from Wrocław University of Technology (1981) and Warsaw University of Technology (1988) respectively. Currently, he is a Full Tenure Professor and Chairman of the Department of Manufacturing Engineering and Production Automation at the Opole University of Technology. He has published more than 150 papers in journals and conference proceedings, and four books on surface engineering and advanced machining. His research interests include metal removal processes, surface integrity and quality engineering, and CAD/CAM systems. Currently, he is a member of two sections of the Polish Academy of Sciences, a senior member of the NAMRI/SME (USA) and a CIRP member.

J. Paulo Davim received his PhD in Mechanical Engineering from the University of Porto in 1997 and his Aggregation from the University of Coimbra in 2005. Between 1986 and 1996 he was a Lecturer in the University of Porto. Currently, he is an Aggregate Professor in the Department of Mechanical Engineering at the University of Aveiro and Head of MACTRIB – Machining and Tribology Research Group. He has more 22 years of teaching and research experience in materials and manufacturing processes. He is the editor of three international journals, guest editor, editorial board member, reviewer and scientific advisory for many international journals and conferences. He has also published more than 250 papers in SCI journals and conferences.

Surface topography is considered to be of paramount importance in a plethora of industrial applications concerning the manufacturability and tribological functioning of components. It is not an exaggeration to say that technological advance is constrained by surface demands.

The present day high requirements for precision and function of machined surfaces imply a proper characterisation and evaluation of surface texture. This may happen by representation of the surface at different levels and by using various arithmetic parameters, as well as statistical, random process and fractal functions as analytical tools accompanied by novel developments in instrumentation and measuring techniques.

The objective of this special issue of the *International Journal of Surface Science and Engineering* is to present contemporary trends and methods outlined and manifested by researchers in metrology, manufacturing engineering and tribology. A variety of topics is embraced, from characterisation methodologies to modelling of surfaces, in association with manufacturing methods and parameters.

The first three papers present new evolutions in the topographic characterisation of surfaces using fractal geometry, and various technologies for textured and sculptured complex rough surfaces and multi-scale analysis of high precision surfaces, respectively.

The fourth, fifth and sixth papers report on the impact of machining factors on surface integrity and texture, followed by relevant modelling, in electro-discharge and abrasive waterjet machining. The seventh paper describes a new industrial application of a ball burnishing tool with surface quality as criterion.

We hope that the papers reflect the increasing emphasis on research on machined surface textures and will be helpful to researchers focusing upon this multi-disciplinary field.

We would like to express our appreciation to the reviewers of the papers for their strong and valuable efforts. Special thanks also should be given to INDERSCIENCE Publishers for their kind support.