Preface

"If your experiment needs statistics,
you ought to have done
a better experiment."
E. Rutherford

Special Topic Volume entitled *Manufacturing Technologies: Materials, Operation and Applications* is focused on the study of various aspects determining operation and usability of manufacturing systems. The topic covers research fields and includes challenges that are solved in practice and also at various research institutions including Technical Universities. Dealing with such kind of research is necessarily associated with high theoretical erudition and also practice demands.

The main aim of the scientific papers collection is to present state of the research within the topics such as:

- characterization and modeling of the manufacturing systems operation,
- diagnostics of machines and manufacturing systems operational states,
- manufacturing technology research.

The contributions are also aimed at:

- operation reliability and diagnostics of machines,
- inspection, evaluation and diagnostics of production quality in technologies of producing and machining of plastics,
- metal die casting technology developments,
- issues and techniques of standard and progressive machining used at development and characterization of advanced engineering materials.

Objects are investigated by using specific models, tools and instruments along with their verification and evaluation of the operation and operational states of technical systems. Part of presented achievements is sourcing from the research performed with participation of young researchers. We are pleased that the collection includes significant part of scientific papers of young researchers. Authors would like to disseminate achieved knowledge in research, educational and entrepreneurial areas.

The Volume contains selection of scientific papers that present knowledge resulting mainly from work within scientific projects supported by the Structural Funds of the European Union, by the grants of Slovak Ministry of Education within agencies VEGA and KEGA; by the institutional tasks of the FMT TUKE and also by other projects.

Finally, we hope that knowledge presented in this collection as well as methods, technical systems and their applications have strong potential to attract and impress researchers as well as other professionals and will contribute to the process of giving an answers that still are to be given or questions that still are to be formulated.

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