Editorial

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Technological advances in precision metrology are of major interest in design, manufacturing and quality control. There has been a rapid and significant progress in development and application of precision measuring techniques in recent years due to global changes in production technology, increasing requirements in performance and function and miniaturisation of manufactured components and assemblies. Evolutions in precision metrology concern the development and application of measuring techniques to be used for the measurement of size, shape and positional relationships as well as surface characteristics of such parts.

This special issue on 'precision metrology' highlights recent inventions and innovations in this field, focusing on their implications for science, industry and engineering. New techniques of metrology for contact and contactless probing including their calibration methods are introduced. Procedures and standards for the performance verification of the measuring techniques as well as innovative measurement strategies are presented. Selected papers deal additionally with the important topic of evaluation of measurement uncertainty, considering special requirements and influences in the micro- and nanometer range.

Authors who have contributed to this issue have been working in the field of precision metrology for many years and participate for the most part as fellows of the CIRP in the scientific technical committee 'precision engineering and metrology' which meets twice a year to discuss recent developments in this field and to exchange news and actual research results. I would like to thank the authors for their great inputs and papers. Particularly, I thank Prof. V.C. Venkatesh for getting the opportunity to organise and frame this special issue on 'precision metrology'.