

Editorial for ISMTII Special Issue of 'KEM':

Dear reader,

This Special Issue of Key Engineering Materials contains a selection of contributions from the 11th ISMTII symposium (International Symposium on Measurement Technology and Intelligent Instruments) which was held for the first time in Germany, in the city of Aachen, and which was entitled 'Metrology – Master Global Challenges'.

Megatrends describe emerging trends which will affect our life, our society and the way how we will create value in the future. These trends will last for more than just a couple of years. The 11th ISMTII proved that metrology plays an important role in tackling these global challenges: Measurement technology is the reliable source of objective data and thus enables for example the industrialization of manufacturing processes, improves the production towards zero defect manufacturing even for individual small batch production and helps to estimate the patient's risk for a minimally invasive surgery. The symposium session topics are related to some of the global challenges like e.g. globalization, information and communication, energy and health.

The symposium has offered a great chance to exchange the international state-of-the-art regarding measurement technology and its contribution to mastering the global challenges. Furthermore, the contiguous industrial exhibition supported a connection between research and application. We would like to thank the German Research Foundation for its financial support of the scientific symposium and the International Committee on Measurements and Instrumentation (ICMI) for supporting the organization which allowed us to have this symposium in Germany.

The symposium has been organized by the WZL of RWTH Aachen and IPT, Aachen in cooperation with the Precision Engineering Division of the PTB Braunschweig and was chaired and co-chaired by Prof. Robert Schmitt and Dr. Harald Bosse. The symposium took place in Aachen from July 1-3, 2013, followed by industrial visits on July 4 and concluded by a technical visit to the PTB in Braunschweig on July 5. Over 300 participants from 20 countries attended the symposium and offered insights into recent developments that help tackling the global challenges with 6 keynote talks, 173 scientific oral presentations and 77 poster presentations, accompanied by an exhibition of the industrial solutions to measurement challenges by 13 companies.

Prof. Dr. Robert Schmitt

Dr. Harald Bosse

	Calibration & machine tool performance	In-process & inline measurement	Intelligent Instruments for automation	Macro metrology	Management of measurement processes	Micro & nano metrology	Optical metrology	Position & displacement metrology	Sensors & actuators	Surface metrology
Life Science and Personal Health						X	X			X
Defence and Safety		X	X				X	X		
Information and Communication			X	X			X	X		X
Mobility and Traffic					X					
Energy and Living	X			X						
Production and Environment	X	X	X					X	X	
Globalisation and Urbanisation					X		X			
Dynamic Product Life Cycles			X	X						