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Peter Lehmann
Wolfgang Osten
Armando Albertazzi G. Jr.
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14 Vibration Measurement
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Introduction

Optical metrology systems for industrial inspection are well-established for tens of years in nearly all relevant fields of industrial production. In times where the physical limits of most measurement principles are well-understood, it often seems to be a question of ingenious utilization of well-known physical concepts in combination with innovative components that push new developments and enhance the capabilities of optical metrology. Nevertheless, there remains considerable room for extension of application ranges, improvement of accuracy and reliability, and integration of optical inspection systems in industrial processes.

In 2015, two further aspects that direct public attention to optical technologies and metrology are noteworthy. The first is the international year of light proclaimed by the UNESCO and supported by many international and national organizations and institutions. The IYL supports optical technologies since it emphasizes their importance with respect to education, research and economy. The second aspect is driven by the industry 4.0 (Smart Factory) agenda and it is related to the future of manufacturing. Smart manufacturing systems and intelligent industrial networks require intensive application of measurement systems especially in industrial environments. Even today, optical systems show great potential in this context, since they are characterized by in-process capabilities, high speed, high accuracy, and reasonable costs.

As a consequence, the Munich conference is still an important international forum of scientific exchange and discussion in the field of optical metrology. More than 160 submissions demonstrate that even after nearly 14 years, the Munich conference series is a considerable event for researchers working in the field of optical metrology all over the world.

With more than 75 oral presentations and 80 posters, the 2015 conference could hold the high number and outstanding level of contributions. This builds the basis of its success. As in previous years, a significant number of contributions deal with optical measurement of three-dimensional geometrical features. A traditional field of application the conference always focuses on, is the measurement of optical components, e.g. aspheres, free-form surfaces, and optical systems. Therefore, we are happy to announce once again a joint session that will be held together with the EOS Conference on Manufacturing and Testing of Optical Components (EOSMTOC) on Wednesday afternoon.

As there are always individuals pushing things forward, we would like to thank those who supported this conference with their dedication. First, we would like to express our sincere gratitude to the members of the program committee for their support in the run-up of the conference. We also thank all authors, especially the distinguished plenary and invited speakers: Ramesh Raskar (MIT Media Laboratory, United States) for his paper "Extreme Computational Imaging: Photography, Health-tech and Displays," as well as Kaoru Minoshima (University of Electro-Communications, Japan), Peng Gao (State Key Laboratory of Transient Optics and Photonics, Chinese Academy of Sciences, China), Matias Viotti (Universidade Federal de Santa Catarina, Brazil), Joris Dirckx (University of Antwerp, Belgium), Marc Georges (Centre Spatial de Liège - Université de Liège, Belgium), and the invited speakers of the joint session, Greg Forbes (QED Technologies Inc., University of North Carolina at Charlotte, United States) and Michael Schulz (Physikalisch-Technische Bundesanstalt, Germany) for their stimulating lectures. Additionally, many thanks are due to the SPIE staff for their professional and cooperative work during the conference organization and the preparation of this proceedings volume. Finally, thanks are also due to all authors, who not only fill the conference with life but also give added value by contributing to these proceedings.

Peter Lehmann
Wolfgang Osten
Armando Albertazzi G. Jr.