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Optical Measurement Systems for Industrial Inspection XI

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Editors

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Introduction

Compared to many other conferences the "Optical metrology systems for industrial inspection XI" has a long and successful tradition of bringing together scientists from academia and industry exchanging their knowledge and discussing new trends, applications and developments in optical metrology. This year the conference takes place for the eleventh time, meaning that the first conference was held already 20 years ago. Until today, this event is an essential part of the biannual Munich SPIE symposium "Optical Metrology" and the "LASER Word of Photonics Congress" at all.

As before, applications of optical metrology in nearly all relevant fields of industrial production will be covered, ranging from high-precision techniques and resolution enhancement to novel measurement systems that may be used in industrial production lines. This impressively demonstrates that the acquisition of knowledge based on reliable measurement data is one of the most important prerequisites to stimulate sustainable progress in industrial manufacturing.

However, the trend towards optical metrology is also driven by an increasing use of optical components and systems such as cameras, light sources, and computing power in consumer electronics products and applications. This helps optical metrology to profit from recent developments and to hold its position as one of the most dynamic fields of measurement technology, dedicated to acquire relevant data effectively in order to control, assess, and improve industrial products and processes.

Again, the Munich conference provides an excellent forum of international scientific exchange and discussion of the latest results. More than 160 submissions impressively demonstrate that, even after 20 years, the industrial inspection conference series remains a remarkable event for researchers working in optical metrology all over the world. With 77 oral presentations and more than 80 posters the 2019 conference could hold, at same time, the high number and the outstanding level of contributions which builds the basis of its long-term success.

As in previous years, a significant number of submissions deals with optical measurement of geometrical features. A field of application of maintaining interest is the measurement of optical components, e.g. aspheres, free-form surfaces, and optical systems. Therefore, the traditional joint sessions with the EOS Conference on Manufacturing and Testing of Optical Components will be continued. Since spectroscopic applications still are of growing interest for the acquisition of multi-modal data even in industrial inspection, a session "Hyperspectral Imaging and Spectroscopic Techniques" was added this year.

Also the invited talks of the conference should be highlighted. Special thanks are due to the distinguished invited speakers, namely Peter de Groot (Zygo), Eberhard Manske (TU Ilmenau), Bernd Bodermann (PTB), Jan Burke (Fraunhofer IOSB), and Rainer Schuhmann (Berliner Glas) for their stimulating lectures.

We would like to express our sincere gratitude also to the members of the program committee for their support of the conference. 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, we would like to thank all authors, who not only fill the conference with life but give added value to the community by contributing to this proceedings volume.

Peter Lehmann
Wolfgang Osten
Armando Albertazzi Gonçalves Jr.