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Song Zhang
Editors

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Introduction

This is the proceedings of the conference on Optical Metrology and Inspection for Industrial Applications III that was held as part of SPIE/COS Photonics Asia (in Beijing, China, 9–11 October 2014). This conference focuses on methods, analysis, and applications of optical metrology and inspection that have been applied to various industries with a particular emphasis on the manufacturing industry. The field of optical metrology and inspection has rapidly grown to wide acceptance for many industrial applications. For example, the requirement from industry realized high-speed and downsized measurement systems, and advances in machine/robot vision have provided compact and smart camera systems, new lighting systems, and better ways of data transfer.

Non-contact methods based on optical imaging principles have been seen wide use in the mechanical engineering and electronics industry, and also made advances in traditional manufacturing areas such as automotive and aerospace manufacturing. These methods are also being used for defect and flaw inspection, and precision measurements. Recent computing power has made analysis methods such as phase-shifting a viable tool for fast on-line inspection for process control and metrology applications. This conference is intended to address the latest advances and future developments in the areas of optical metrology and inspection as they are applied to practical applications in various industries.

In these proceedings, papers submitted to the conference are presented in the following eight sessions: Optical Metrology Methods I to VI and Optical Metrology Applications I and II, and one Poster Session.

In addition to optical principles and techniques, imaging methods and analysis techniques have also become more and more popular in practical applications due to rapid advanced computational processing methods, camera systems and device technologies including various optoelectrical elements and devices. In the next conference scheduled in 2016, more papers are expected to be presented in those areas as well.

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