

# PROCEEDINGS OF SPIE

## ***Optomechatronic Sensors and Instrumentation III***

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*Editors*

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# International Symposium on Optomechatronic Technologies ISOT 2007

In recent years, most engineered products, processes, and systems have been evolving towards higher functionality, flexibility, intelligence, and miniaturization. This trend is stimulated by the ongoing fusion between optical and mechatronic technologies leading not only to enhanced performance but also to the creation of new, innovative functionalities. Because of its synergistic effect, the integration of these engineering fields, labeled optomechatronic technology, is becoming a major driving force to future enabling technologies.

The objective of this symposium is to gather researchers and engineers working in the field of optomechatronics and to provide them with a forum for discussion for exchanging their points of view and experience and sharing their research results through high quality peer reviewed papers.

The symposium consists of five conferences:

- 1) Optomechatronic Actuators and Manipulation**
- 2) Optomechatronic Sensors and Instrumentation**
- 3) Optomechatronic Micro / Nano Devices and Components**
- 4) Optomechatronic Computer-Vision Systems**
- 5) Optomechatronic Systems Control**

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# Introduction

The novel achievements in optics, semiconductors, micro-machines, and micro-system technologies significantly enhance the requirements for highly precise and efficient sensors and instrumentation. Furthermore, for the tremendous developments in the rapidly increasing field of nanotechnology, a tight link between electro-optical components and mechanical systems becomes essential.

This conference will give a survey of the broad range of metrological applications within the interdisciplinary research field of optomechatronics. One session will focus on different microscopic techniques including interferometry and digital holography for the metrology of surface structure and thin surface layers. Recent developments in fiber optic sensors and waveguides are the topic of another session. Innovative solutions for precision multi-axis position measurement and control are also presented. Other papers are about spectroscopic instrumentation and data evaluation, and the measurement of surface strain fields. In addition to 18 oral presentations, a poster session will give insight into further research results.

**Rainer Tutsch**

