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Introduction

The growing demands for accurate and repeatable measurements of increasingly complex devices, especially in the semiconductor and MEMS industries as well as in the bio and outer space sciences, has driven the field of optical metrology to develop innovative methodologies capable of providing fast, precise, real-time assessments of components. While the range of techniques and technologies in interferometry is already vast, researchers strive to find solutions to new challenges that help make invisible things visible and to extend our vision further into outer space as well as into the nano-world and into the biological and medical fields.

Interferometry XVI, which is a continuation of the Interferometry series, consists of two complementary conferences, one dedicated to techniques and analysis and the other to applications. These two conferences present recent developments in analyses and techniques that use principles of interferometry to achieve highly precise measurements of different objects and their application to a wide range of systems. The proceedings of the two conferences comprising Interferometry XVI are published in two separate volumes as *Interferometry XVI: Techniques and Analysis*, Proceedings of SPIE Vol. 8493, and *Interferometry XVI: Applications*, Proceedings of SPIE Vol. 8494.

This volume contains the proceedings of Interferometry XVI: Applications and consists of 27 papers: 2 invited, 20 contributed, and 5 posters. The papers address some of the pertinent work and illustrate the current status of developments in this field. The papers were grouped into six technical sessions: Micro- and Nano-scale Measurements; Characterization of Dynamic Events I; Characterization of Dynamic Events II; Novel Methods and Applications; NDT and Materials Characterization; and Fringe and Image Processing.

The tone of the conference was set at a high standard by the two invited speakers: James M. Kilpatrick, who discussed methods to characterize 3D MEMS structural dynamics with a conformal multi-channel fiber optic heterodyne vibrometer, and Susanne Zwick, who described 3D measurement methods on the basis of tailored free-form mirrors.

Contributions by all of the authors have clearly shown that interferometric methodologies are not merely laboratory curiosities, but that they have become accepted tools for obtaining solutions to a wide range of today's applications.

We thank SPIE, the program committee, the authors, and everyone attending this sixteenth Interferometry conference. SPIE continues to provide a forum for exchange of ideas and the dissemination of the latest research in interferometry and related fields. As a community we come together at conferences such as

this one to share not only our work, but also our professional vision. We reacquaint ourselves with old friends and meet new colleagues. The value of these conferences comes from both the professional insight we gain and the relationships we foster.

Thank you very much for your participation!

Cosme Furlong
Christophe Gorecki
Erik L. Novak