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Dimensional Optical Metrology and Inspection for Practical Applications II

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Introduction

This proceedings volume of the 2013 conference on Dimensional Optical Metrology and Inspection for Practical Applications offers valuable insights and significant advancements for the field of optical dimensional metrology. As computer technology has improved, so have the tools for optical metrology. Reported in these proceedings is improved quality pattern projecting using dithering, faster processing using the GPU for real-time 3D at 60 frames per second, and the reduction of phase noise by using multiple frequency projections. These capabilities represent improvements upon the current commercial offerings for fast 3D metrology. Another paper on new methods discusses interesting work on the use of a Fizeau system that produced surface micro-profiles down to 10 nanometer resolution with less noise than white light interferometers. An innovative approach in another paper shows an inner diameter gage, projecting light out from the center, but also looking along the same line, using depth from focus to measure the radius at any given point. The design allows for measurements in tight spaces and ridges within the inner surface. Finally, as an example of the many practical applications discussed, the reader may find interesting some very timely work on the combination of digital image correlation methods and thermo imaging for monitoring pipes and boiler drums in the power generation industry. Overall, the field of optical dimensional metrology continues to be a vibrant and growing field that is finding new, practical applications every day.

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