

Surface Dimensional Metrology by Optical Triangulation

Manuel Filipe Costa

Universidade do Minho, Portugal

Abstract: Non-destructive dimensional inspection of surfaces is an issue of utmost importance in a large number of situation in R&D and in the industrial world. An increasing number of surfaces and surface types must be microtopographically characterized in non-invasive ways. Optical triangulation in different approaches allow the establishment of metrological systems that by its inherent relative simplicity versatility robustness and reliability can cope with most modern requirements of the non-invasive inspection of objects and surfaces both smooth or rough. In this communication we will present a brief review of the work done at the Microtopography Laboratory of the Physics Department of the University of Minho, Portugal, on the development of methods and systems of optical triangulation based microtopographic inspection of surfaces.

BRIEF BIOGRAPHY

Manuel F. M. Costa hold a PhD degree in Science (Physics) from the University of Minho (Portugal) where he works since 1985 at its Physics Department teaching and performing applied research in optical dimensional metrology, image processing, fiber optics, optometry, optical and optometric instrumentation, and on physics science and technology education and scientific literacy. Presented over three hundred invited, oral or poster communications in international meetings and published around the same number of scientific papers, monographs and books. He is editor or member of the editorial board of several scientific and educational international journals. He organised and acted as chairperson on eighteen international conferences and on over forty summer schools and workshops as well as European teacher training courses. Supervised nearly thirty master and PhD students in varied fields ranging from optical dimensional metrology and biomedical diagnosis to solgel and nanoparticles production and characterization or physics and science and technology teaching and learning. He organised and delivered countless outreach activities in different countries. He is member of the Scientific Advisory Board of the European Optical Society, member of the Board of the Iberoamerican Optics Network, RIAO, and member of the Board of Stakeholders of PHOTONICS'21. He act as president of the Hands-on Science Network, of the Portuguese Territorial Committee of the International Commission for

Optics and of the Portuguese Society for Optics and Photonics, SPOF. He is Senior member of the International Society for Optics and Photonics, SPIE, and Fellow of European Optical Society, EOS.