

Surface Topography Measurement by Confocal Spectral Interferometry

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Abstract : Confocal spectral interferometry (CSI) is an innovative optical method for determining microtopography of surfaces and thickness of transparent layers, based on the combination of two optical principles: confocal imaging, and spectral interferometry. Confocal optical system images at each instant a single point of the sample. The whole surface is reconstructed by plan scanning. The interference signal generated by mixing two white-light beams is analyzed using a spectrometer. In this work, five 'rugotests' of known standard roughnesses are investigated. The topography is then measured and illustrated, and the equivalent roughness is determined and compared with the standard values.

Keywords : confocal spectral interferometry, nondestructive testing, optical metrology, surface topography, roughness

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