

Multi-Sensor Concept in Optical Surface Metrology

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Abstract : In different fields of industry, there is a huge demand to acquire surface information in the dimension of micrometer up to centimeter in order to characterize functional behavior of products. Thanks to the latest developments, there are now different methods in surface metrology, but it is not possible to find a unique measurement technique which fulfils all the requirements. Depending on the interaction with the surface, regardless of optical or tactile, every method has its own advantages and disadvantages which are given by nature. However new concepts like 'multi-sensor', tools in surface metrology can be improved to solve most of the requirements simultaneously. In this paper, after having presented different optical techniques like confocal microscopy, focus variation and white light interferometry, a new approach is presented which combines white-light interferometry with chromatic confocal probing in a single product. Advantages of different techniques can be used for challenging applications.

Keywords : flatness, chromatic confocal, optical surface metrology, roughness, white-light interferometry

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