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Optical Microscopy for engineering measurement - numbers with confidence

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The demand for surface metrology has been increasing over several decades, with industrial requirements for quantification of structured and randomly rough surface features. This has been matched by the development of a range of dedicated non-contact microscope based techniques for three-dimensional surface measurement, such as; coherence scanning interferometry, confocal microscopy, and focus variation. Furthermore, more traditional microscope platforms are now being augmented with additional functionality to allow them to produce fully quantified data maps.

When coupled with the developing suite of ISO 25178 standards, the outcome is a growing array of instrumentation and data analysis techniques that are redefining the ability to measure surface structure, and provide greater insight into the engineering functional characteristics of surfaces. However, in all cases it is important to deliver numbers with confidence, requiring artefacts and processes that allow measurements to be traced to the metre.

This presentation will illustrate the application of microscope based techniques to solve surface metrology based engineering problems, and the development of traceable areal artefacts and protocols to provide the user with confidence in the data.