



The Olympus LEXT OLS4000 has been chosen by Germany's national metrology institute, the PTB, for use in a joint project that aims to develop an assistance system for confocal and interferential microscope users. As an advanced example of the instrumentation that the "Optassyst" project focuses on, the LEXT OLS4000 will help to provide measurements to check the specifications of standards and measurement procedures. At the launch event, the LEXT OLS4000 demonstrated its leading edge measuring capabilities by precisely resolving a 6 nm step height feature – exceeding its design specification of 10 nm.



At the recent launch event, Olympus showcased the LEXT OLS4000 to 35 participants from the PTB. The initial lecture session consisted of three presentations: What the "Optassyst" project is; what the LEXT OLS4000 is; and the importance of resolution. These were followed by a hands-on session where all participants were invited to investigate various samples with the LEXT OLS4000. With its excellent optical resolution, participants were able to view samples with step height features down to 6 and 8 nm, exceeding the manufacture specifications of 10 nm. As a result, the LEXT OLS4000 was extremely well received and measured all samples correctly.

The "Optassyst" project

This project - user-oriented assistance systems for the reliable use of interferometric and confocal distance sensors in the industrial production environment project (www.ptb.de) - aims to develop a software-based user-friendly assistance system for three-dimensional optical geometry recording on technical surfaces. In cooperation with Industry and University partners, the PTB is developing a system to provide users with a valuable resource. It will aid in the instrument set-up, use of advanced signal processing and the application of calibration strategies and characteristic 3D variables, helping users to improve their understanding of topographic measurements.

Three-dimensional surface measurement technology is essential for the accurate recording of the optical geometry of technical surfaces. In systems such as a combustion engine, the degree of efficiency is dependent upon surface quality. The functional behaviour of surfaces under such a high thermal load is therefore optimised by specifically modifying the surface topography. As a result, understanding the topographical measurements is pivotal to this process and will be greatly facilitated by the results of this project.

By using the LEXT OLS4000 as a representative for confocal laser scanning microscopes in this project, resolution and measuring uncertainties of features on surface topography standards will be determined. With its excellent X/Y and cutting-edge Z performance, the LEXT OLS4000 provides a fast and powerful way to research and characterise these standards. This unique tool will therefore enable users to accurately interpret measurement results.

Caption:

Dr. Rolf Krüger-Sehm, Head of Working Group "Roughness Measuring Methods", Physikalisch-Technische Bundesanstalt, Brunswick, Germany