We are very pleased to welcome you to this virtual workshop on Surface Texture Metrology which will be held in conjunction with the University of Huddersfield and our special guest speaker Prof. Liam Blunt, Director of the Centre for Precision Technologies.

The workshop will focus on Bruker's Stylus & Optical Profilers and include talks and practical sessions live from our labs in the UK and featuring the automated benchtop system ContourX-500 Optical Profilometer.

After a short introduction to surface texture and its requirements, we will review different profiling techniques, their applications and potential value for users. We will introduce the White Light Interferometry (WLI) optical profiler and focus on applications such as monitoring roughness, wear volume or defect inspection. We will also go into new developments relating to the WLI technique which have led to the expansion of the technique into fields such as rough and steady samples and thin film while taking large sample factors into account.

Our guest speaker Liam Blunt will focus on the application of areal feature parameters in relation to understanding surface functionality.

Program

14:00 An Introduction to Surface Metrology
Boumedienne Boudjelida, Sales Manager UK

14:10 Application of Areal Feature Parameters
Prof. Liam Blunt, University of Huddersfield

14:40 State-of-the-Art Surface Texture Metrology
Dr Samuel Lesko, Sr. Applications Dev. Manager, for Tribology, Stylus & Optical Profilers

15:00 Practical Session 1: 3D Measurements
Dr Vishal Panchal, Application Scientist
In this live practical session, the ContourX-500 optical profiler will be used to demonstrate 3D measurements. We will explore surface roughness/waviness of a given sample and depth/volume of a scratch test.

15:30 Break

15:35 Practical Session 2: Film Thickness Measurements
Dr Vishal Panchal, Application Scientist
In this live practical session, the ContourX-500 3D optical profiler will be used to demonstrate film thickness measurements. We will explore the surfaces of the substrate and film coating from a single measurement.

16:00 Q&A and Closing

Please don't hesitate to contact us at productinfo.emea@bruker.com if you have any questions.

Talk abstract

Application of Areal Feature Parameters

Professor Liam Blunt, Director Centre for Precision Technologies, University of Huddersfield, UK

This presentation seeks to illustrate the process behind the use of feature parameters as defined in ISO 25178-2 when these parameters are deployed to try to understand surface functionality. Feature characterization does not in general have specific feature parameters defined, but has instead a toolbox of pattern recognition techniques that can be used to characterize specific functional features on a scale-limited surface. The feature characterization process consists of five stages: (i) selection of the type of texture feature; (ii) segmentation; (iii) determining significant features; (iv) selection of feature attributes; and (v) quantification of feature attribute statistics. There are nine specifically named feature parameters defined in ISO 25178-2; these parameters are, however, still defined using the five stages. Several examples are covered in terms of the application of feature parameters where a deeper understanding of surface functionality is required.

Professor Liam Blunt has an honours degree in Materials Technology and a PhD in "The Metallurgy of Centreless Ground surfaces" under the supervision of Dr Wilf Tomlinson at Coventry University. Prof Blunt also spent one year working as a metallurgist in failure analysis at AMTAC Laboratories in Manchester. His Academic experience includes a Post-Doctoral period at Warwick University covering Microscopy of Thick and Thin Film Superconductors. Prof Blunt then moved onto Birmingham University in 1990 to work on the development of a multi properties materials tester. Whilst at Birmingham he developed an interest in tribology and surface metrology. He secured a lectureship and developed his research in the field of surface metrology.

In 1997 Prof Blunt moved to Huddersfield and began developing the Centre for Precision Technologies. As well as teaching in the area of Materials and Manufacturing processes, he has formed extensive industrial collaborations and is now Director of the Centre for Precision Engineering. His Research Expertise and Interests are:

- *Surface micro and nano metrology*
- *Tribology and Metrology Medical Implants*
- *Development of Precision Abrasive Processes*
- *Forensic Metrology for Ballistics*