

# Assessing the Surface Metrology of Orthopaedic Implants



Virtual Workshop - Wednesday, January 19, 2022 | 13:00 GMT | 14:00 CET

Join us and our special guest speaker **Prof. Liam Blunt, Director of the Centre for Precision Technologies at the University of Huddersfield**, for this virtual workshop on performing surface metrology in orthopaedic applications. Assessing the quality of the materials and products used in orthopaedic implants and devices is critical for meeting the highest international standards, extending the life span of implants, and ultimately improving the quality of life of patients.

This workshop will focus on assessing surface structure and roughness using Bruker's Stylus & Optical Profilers and will include a practical session live from our labs in the UK. The ContourX-500 optical profiler will be used to demonstrate:

- Non-contact and non-destructive characterization of surface parameters
- 3D optical microscopy measurements based on white light interferometry
- Quantification of curvature variations
- Surface roughness
- Calculation of loss of volume

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**14:00 An Introduction to Surface Metrology**

*Boumedienne Boudjelida, Sales Manager UK*

**14:05 Surface metrology for the Orthopaedic Applications - Measuring the rough with the smooth**

*Prof. Liam Blunt, University of Huddersfield, UK*

**14:35 Live Demonstration featuring the ContourX-500 Optical Profilometer**

*Dr Vishal Panchal, Application Scientist*

**14:55 Q&A**

**15:00 Closing**

Please don't hesitate to contact us at [productinfo.emea@bruker.com](mailto:productinfo.emea@bruker.com) if you have any questions.

## Talk abstract

### Surface metrology for the Orthopaedic Applications; Measuring the rough with the smooth

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

The talk will cover the application of precision surface metrology to a range of orthopaedic applications. The presentation will consider particular instruments for particular application and will cover surfaces from precision polished bearing surfaces to additively manufactured parts. The selection of the most appropriate instrument will be considered along with coherence scanning interferometry and focus variation technologies. The use of areal roughness parameters to optimize analysis of the data collected can give clues to the functionality of parts and will be illustrated through case studies.



*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*