Workshop on multifunctional ultrafast microprobes for on-the-machine measurements

3rd June 2019
19th EUSPEN Conference, Bilbao

Traceable measurements of surface form and property are essential for controlling the use of or assessing the condition of machined parts and tools in high precision mechanical manufacturing machines especially when these components are subject to wear and surface contamination. Therefore, this project will develop new tactile microprobes for reliable and ultrafast, on-the-machine (i.e. in-line) topographical micro-form and roughness measurements that are 30 times faster than conventional methods and fast methods using contact resonance and force-distance curves to measure adhesion, stiffness, friction, coating thickness and to detect contaminants through adhesion contrast.

15:00	**Welcome** Uwe Brand, Coordinator of EMPIR project 17IND05 MicroProbes (PTB Braunschweig, Germany)
15:05	**Overview EMPIR project "17IND05 MicroProbes"** Uwe Brand (PTB Braunschweig, Germany)
	Fast piezoresistive silicon microprobes
15:15	**Future piezoresistive silicon microprobes for fast roughness measurements with high damping** Michael Fahrbach (TU Braunschweig/LENA, Germany)
15:35	**Tip flight and wear for fast roughness measurements** Heinrich Behle (PTB, Germany)
15:55	**Force distance curve (FDC) and contact resonance (CR) measurement modes for mechanical property measurements** Sebastian Backes (BAM, Germany)
16:15	**Compact microprobes with integrated traverse unit for fast roughness measurements** Michael Drexel (Breitmeier Messtechnik GmbH, Germany)
16:35	*Coffee break*
	In-line applications
16:50	**Measurement of micro-form and roughness on finishing machines** Sebastian Goeke (Thielenhaus Technologies, Germany)
17:10	**Application of fast silicon microprobes on roll finishing machines** Tuomas Lindstedt (Roll Research International, Finland)
17:30	**In situ Topography Measurement in Tribological Contacts** Timothy Kamps (NPL)
17:50	**Discussion of project aims and opportunities**
18:00	End of workshop
19:00	**Welcome reception**
21:00	**End of first EUSPEN day**