For advanced economies to remain globally competitive, they must transition toward high-value manufacturing as we move towards “Industry 4.0”, sometimes referred to as the 4th Industrial Revolution. Future products will be typified by high levels of innovation, increased complexity and, especially, high levels of precision and quality. To support the manufacture of such challenging products and to increase the degree of automation in manufacturing, increased reliance will be placed on measurement; the key to control. Metrology allows the digital signature of a product to be traced through the entire manufacturing process, allowing digital data to be traceable, trustworthy and effective. Whereas measurement has traditionally been carried out after manufacturing, the trend nowadays is for “integrated metrology”. The result of the measurement can be used to control the process and/or to inspect the quality of the product. Here, we define “integrated metrology” as any technology that uses in-process, in-situ, on-machine or in-line measurement, with or without feedback mechanisms for process control or condition monitoring. The result of the measurement can be used to control the process and/or to inspect the quality of the product. This workshop brings together some of the leading industrial players in integrated metrology, who will present the state of the art, latest trends and open questions.

12:30 Opening remarks
Richard Leach (University of Nottingham)

12:50 Process Monitoring
James Moore (Advanced Manufacturing Research Centre)

13:20 Advancements in contact and non-contact on machine metrology for ultra-precision machine tools
Jeff Roblee (AMETEK Precitech Inc.)

13:40 Technical advancement of in-process inspection solutions for the workshop
Blake Kendrick (Renishaw)

14:00 Integrated metrology in machine tools, laser and additive processes
Gorka Kortaberrria (Tekniker)

14:20 Application of multi-DOF interferometers in manufacturing environment
Denis Dontsov (SIOS Meßtechnik GmbH)

14:40 Workpiece error measurement and compensation methodologies in ultra precision machining
Sinan Badrawy (Moore Nanotechnology Systems)