



The University of  
**Nottingham**

UNITED KINGDOM · CHINA · MALAYSIA

# Metrology Winter School

*21 - 25 November 2016*

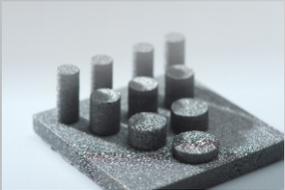
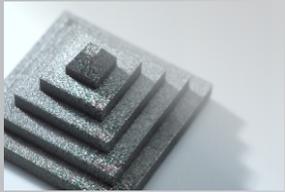
The University of Nottingham



**MANUFACTURING  
METROLOGY TEAM**

**The MICROMAN Metrology Winter School** will take place from 21 - 25 November 2016 at the Faculty of Engineering, University of Nottingham. The course provides cutting-edge lectures on a range of micro/nano-scale metrology topics for PhD students. Topics include introductory and advanced metrology lectures, and hands-on training in the use of measuring instruments. The lectures are designed to give a feel for the subject and why it is important, but do not cover difficult mathematical detail. The lectures will cover the following topics:

- Why measurement is essential
- A short history of measurement
- Measurement traceability – fundamental principal, global and legal infrastructure
- Terminology
- Error types and calibration
- The SI infrastructure
- SI units, their definition, realisation and dissemination
- Uncertainty analysis
- 1D and 2D length metrology, end and line standards
- Comparators
- Interferometry (basic)
- Co-ordinate metrology
- X-ray computed tomography
- Form measurement including optical methods
- Tolerances and tolerance assessment
- Process and measurement capability indexes
- Why is surface measurement needed?
- Standards infrastructure
- Stylus instruments
- Optical instruments
- Potential problems with instruments
- Difference between profile and areal characterisation
- Profile characterisation
- Areal characterisation, field and feature parameters



The course fee is £1,500 (professional) or £1,000 (PhD student); including tuition, course notes, materials, refreshments, lunches and the course dinner, but does not include accommodation.

- To register: <http://tinyurl.com/MetrologyWinterSchool>
- Website: <http://tinyurl.com/metrology-winter-school-Unott>
- Contact: [wahyudin.syam@nottingham.ac.uk](mailto:wahyudin.syam@nottingham.ac.uk)

**Deadline:  
(limited seats)  
15 October 2016**

