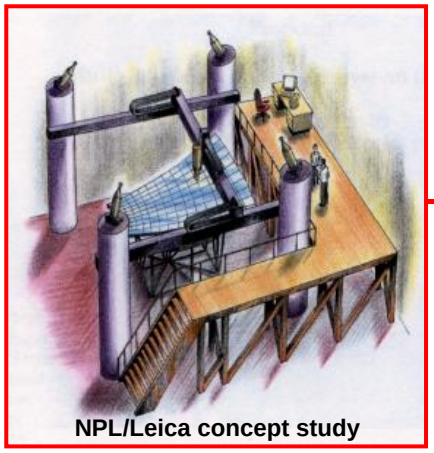
NPL/Leica concept study

Karlsruhe Institute of Technology
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Introduction to Portable Coordinate Measurement (PCM)
Measurement system design for industrial use

Stephen Kyle works in the general field of Portable Coordinate Measurement (PCM) with a special interest in Large Volume Metrology (LVM). LVM demands sub-millimetre accuracies in the manufacture and assembly of objects such as aircraft and automobiles where object sizes are typically in a range from 1m – 10s of metres. His background includes 15 years with Leica Geosystems, mainly on the development of measurement systems for industrial use. He now works independently and is an Honorary Senior Research Fellow at University College London (UCL).

PCM is part of a spectrum of 3D measurement technologies, from mapping the Earth at one end to error mapping a Coordinate Measuring Machine (CMM) at the other. The buildings and machines we construct are part of our environment. Dimensional measurement is a key element in their manufacture and recording.

The talks will present PCM systems and discuss their potential for further development. They will be delivered in English and it will help to have some small knowledge of the techniques and systems used in mapmaking, geodesy and photogrammetry. There will be 4 lectures:

1 Introductions and PCM in context
An introduction to PCM in general, with an outline of business activity and where to learn more. The talk will emphasize the measurement spectrum from mapmaking to metrology.

2 Common portable and large volume metrology systems
An introduction to CMM arms, laser trackers and vision metrology. This is based on material recently created for introductory training courses under development by the UK's National Physical Laboratory (NPL).

3 Other portable systems for metrology
The remaining spectrum of coordinate metrology systems is presented here. This includes area scanners, single camera systems, indoor GPS, and hybrid and automated systems. Again this is based on material for a second level of NPL training.

4 What's new?
Following the review of the current measurement toolbox, recent developments, prototypes, concepts and technology gaps will be presented and potential new development areas identified in both the manufacturing and built environments.