



# **PRACTICAL SESSIONS**

## **Dimensional Metrology**



**ENGINEERING  
DEPARTMENT**



**MECHANICAL & MATERIALS ENGINEERING  
FOR PARTICLE ACCELERATORS AND DETECTORS**

# Introduction

Welcome to this hands-on session dedicated to Dimensional Metrology!

Helpers for the sessions :

Optical  
Profilometry:

**Giacomo Calchi**  
**Role:** Dimensional Metrology  
Engineer  
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**Thomas Carlier - BRUKER**  
**Role:** Application Scientist  
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**Sergey Lemeshko - BRUKER**  
**Role:** Senior Sales Engineer  
[sergey.lemeshko@bruker.com](mailto:sergey.lemeshko@bruker.com)

3D Laser  
Scanning:

**Maciej Burkowski**  
**Role:** Dimensional Metrology  
Engineer  
[maciej.burkowski@cern.ch](mailto:maciej.burkowski@cern.ch)

**Olivier Langlois - AMETEK**  
**Role:** Application Engineer  
[Olivier.fr.langlois@ametek.com](mailto:Olivier.fr.langlois@ametek.com)

CERN Metrology Laboratory Website : [Here](#)

# Objective & Contents

...in connection with the lectures  
“Introduction to Design for Accelerators” – M. Timmins  
“Introduction to Metrology” – P. Shore  
“Measurement Uncertainty” – S. Piano

## Objectives :

- Review of basic ISO GPS principles (roughness, geometrical tolerances)
- Knowledge of the working principles of the two technologies;
- Knowledge and practical application of the basic workflows of the two technologies in dimensional metrology applications;
- Awareness of the further capabilities and potential applications of the two technologies.

## Contents :

2 sessions will be held covering the two techniques:

- Optical profilometry
- 3D scanning

# Introduction

21 / 22 students

10 / 11 students – Optical profilometry

- **Topic** : Roughness measurement using optical profilometry
- **Duration** : 1h30 minutes
- **Helpers** : Giacomo, Thomas, Sergey

10 / 11 students – 3D Scanning

- **Topic** : 3D scanning of a vacuum chamber using a handheld laser scanner
- **Duration** : 1h30 minutes
- **Helpers** : Maciej, Olivier

# Link to slideshows



<https://indico.cern.ch/event/1326947/timetable/>



**Enjoy your practical  
session with us !**



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