



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Surface Analytical Methods: Applications to Materials Science

2324-116R-M01

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#### Title

Surface Analytical Methods: Applications to Materials Science

#### Teacher(s)

Dr. Filippo Radicati di Brozolo, Western Digital, California (retired)

#### Language

English

#### Short description

The course aims at providing an introduction to the main surface analytical methods and their application to the study of materials.

The following topics will be addressed.

- Introduction to Surface Analysis: definition of solid surface stimulation of solid materials with different means, photons, charged particles; analysis of emitted signals by means of electron spectroscopies; description of surface- capable electron spectroscopic techniques, their relationships with Electron Microscopy; Auger Electron Spectroscopy as a by-product of Secondary Electron Microscopy.

- X-ray stimulation of surfaces, and related analytical techniques: XPS/ESCA (X-ray Photoelectron Spectroscopy/Electron Spectroscopy for Chemical Analysis).
- Advanced techniques related to XPS: synchrotron radiation as X-ray source; analytical applications of XAS, EXAFS and XANES; overview of Near-Field techniques, tip-enhanced imaging and spectroscopy techniques (PiFM, NSOM etc)
- Ion spectroscopies: stimulation of secondary ions from solid surfaces; SIMS and MALDI-TOF.

## **CFU / Hours**

1 CFU / 8 hours

## **Teaching period**

January 2024;

Jan 15th (16.30 - 18.30)

Jan 16th (16.30 - 18.30)

Jan 17th (16.30 - 18.30)

Jan 18th (16.30 - 18.30)

(eventually also on Jan 19th, 16.30-18.30)

Online only, streamed at <https://unimib.webex.com/unimib/j.php?MTID=m8a24c30defe1174ead6cf5ce9a1ba711>

## **Sustainable Development Goals**

QUALITY EDUCATION

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