



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Surface Analytical Methods: Applications to Materials Science

2324-116R-M01

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
