UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Smart materials, from molecular switches to motors

2526-116R-M12

Aims

The focus of the lectures is on molecular nanoscience, novel responsive materials, molecular switches and motors, inspired by Nature's principles of molecular assembly, recognition, transport, motion and catalysis. A second part of the program deals with the principle to fabricate porous architectures endowed with molecular dynamics in the solid state and on command gas capture and release by chemical and physical stimuli.

Contents

The focus of the lectures is on molecular nanoscience, novel responsive materials, molecular switches and motors, inspired by Nature's principles of molecular assembly, recognition, transport, motion and catalysis. A second part of the program deals with the principle to fabricate porous architectures endowed with molecular dynamics in the solid state and on command gas capture and release by chemical and physical stimuli.

Detailed program

Module A: Porous Materials as a valid platform to promote ultrafast dynamics and functional properties in the solid state

Module B: From molecular switches to motors

The focus of the lectures is on molecular nanoscience, novel responsive materials, molecular switches and motors, inspired by Nature's principles of molecular assembly, recognition, transport, motion and catalysis. A second part of the program deals with the principle to fabricate porous architectures endowed with molecular dynamics in the solid state and on command gas capture and release by chemical and physical stimuli.

Prerequisites

Teaching form

Module A requires 4 hours of frontal teaching.
Module B requires 4 hours of frontal teaching

Textbook and teaching resource

Slides

Semester

Last week of November 2025, first week of December 2025

Assessment method

Brief report on a specific topics assigned by the teacher

Office hours

Write an email to angiolina.comotti@unimib.it

Sustainable Development Goals

QUALITY EDUCATION