



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Introduction to Photochemistry (Curricular - Chemistry)

2021-94R-SCGA11

Title

Introduction to photochemistry

Teacher(s)

Luca Bertini ; Claudio Greco ; Antonio Papagni

Language

English

Short description

Photophysics:

- light-matter interaction and photostimulation processes
- Interactions between atoms and molecules and photographic processes
- Frank-Condon's Principle
- Dynamics and time scale for decaying an excited state (fluorescence, phosphorescence)

Photochemistry:

- Organic photochemistry and photochemical processes
- Organic photochemistry: Photostimulate organic reactions
- Radical or ionic dissociation
- Intramolecular rearrangements and photoisomers
- Hydrogen atom abstraction
- Photodimerization, photoaddition, photoionisation reactions
- Photochemical activity of aromatic compounds
- photochemistry of diazo- and azide compounds
- Photo-removable protective groups
- Chemiluminescence

Technical and experimental aspects of organic photochemistry

- Inorganic photochemistry and coordination compounds
- Characterization of the inorganic and coordinated electron spectra
- Decay and Lifetime kinetics of an excited state
- Energy transfer: Förster and Dexter mechanism
- Electron transfer: Marcus theory and quantum approach
- Proton-coupled electron transfer
- Redox properties of excited states of coordination compounds: the case of $[\text{Ru}(\text{bpy})_3]^{2+}$;

Objective of the program: The mini-course of photochemistry is an introduction to a selection of general, organic, inorganic, biological, solid state and theoretical photochemical themes with the aim of providing to phd students knowledge in basic principles and application of photochemistry.

Evaluation: NO

CFU / Hours

2 CFU - 16 Hours (Lecture)

Teaching period

Il semester
