UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

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

- Intrameloogic 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: Markus theory and quantum approach

- Proton-coupled electron transfer

- Redox properties of excited states of coordination compounds: the case of [Ru(bpy)3]2+;

Objective of the program: The mini-course of photochemistry is an introduc-tion 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

II semester