UE Molecular photophysics

Niveau d'étude
Bac +4

ECTS
3 crédits

Composante
UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)

Période de l'année
Toute l'année

- **Langue(s) d'enseignement:** Anglais
- **Ouvert aux étudiants en échange:** Oui
- **Code d'export Apogée:** PAX8NAAI

Présentation

Description

1. INTRODUCTION

2. BASIC PHOTOPHYSICAL PROCESSES

2.1. Creating excited states by light absorption
2.2. Properties of excited states
2.2.1. Geometry
2.2.2. Acid-base properties
2.2.3. Redox properties
2.2.4. Dipolar moment
2.3. Deactivation of the excited electronic states
2.3.1. Non-radiative transitions
2.3.2. Radiative transitions
2.3.3. Parameters
2.3.4. Experimental measurement

3. QUENCHING OF EXCITED STATES

3.1. Kinetics of Stern-Volmer

3.2. Energy transfer reaction (electronic)
3.2.1. Radiative energy transfer
3.2.2. Non-radiative energy transfer by resonance
3.2.3. Non-radiative energy transfer by exchange
3.3. Electron transfer reactions
2.3.1. Energy aspect
3.3.2. Kinetic aspect
3.3.3. Application of electron transfer to conversion and storage of solar energy
3.4. Excimers and exciplexes
3.5. Time-resolved spectroscopy method

4. PHOTONICS OF SOLIDS AND NANOPARTICLES
4.1. Introduction
4.2. Exciton formation
4.3. Applications of photonics of solids
5. PHOTOCHEMICAL AND PHOTOCHROMIC REACTIONS
5.1. Photochemical reactions
5.1.1. The biradical reactions
5.1.2. Pericyclic reactions
5.2. Photochromic reactions

Heures d'enseignement

UE Molecular photophysics - CM-TD	Cours magistral - Travaux dirigés	13,5h
UE Molecular photophysics - TP	TP	12h

Période : Semestre 8

Infos pratiques

Lieu(x) ville

Grenoble

Campus

Grenoble - Domaine universitaire