Optique non linéaire et physique des lasers

Lecturer
Mustapha TLIDI (Coordinator)

Course mnemonic
PHYS-F476

ECTS credits
5 credits

Language(s) of instruction
French

Course period
Second term

Course content

Nonlinear propagation: two-level medium, propagation regimes and ultrashort pulse propagation. Cavity non linear optics: Laser theory, optical bistability. Weakly nonlinear systems: frequency mixing, second harmonic generation, optical parametric oscillator. Quantum interference: coherence and atomic interference.

Objectives (and/or specific learning outcomes)

Understand the light-matter interaction as an application of nonlinear Physics

Teaching method and learning activities

Lectures

References, bibliography and recommended reading

J. V. Moloney and A. C. Newell, Nonlinear Optics, Addison-Wesley, 1992 P. Mandel, Theoretical Problems in cavity Nonlinear Optics, Cambridge university press, 1997 R. W. Boyd, Nonlinear Optics, Elsevier, 2003

Other information

Contact(s)

Campus Plaine, Bat NO, 2.06.106

Evaluation method(s)

Oral examination

Evaluation method(s) (additional information)

oral

Programmes

Programmes proposing this course at the faculty of Sciences

MA-PHYS | Master in Physics | finalité Research/unit 1 and finalité Teaching/unit 1