Mécanique quantique I

Lecturer
Nicolas CERF (Coordinator)

Course mnemonic
PHYS-H301

ECTS credits
5 credits

Language(s) of instruction
French

Course period
Second term

Course content

Quantum formalism (Dirac notation). Fundamental principles and their interpretation. Resolution of simple problems in position basis (harmonic oscillator, particle in a central potential, potential barrier and tunneling effect). Algebra of angular momenta and spins. Perturbation and variation methods for steady-state solutions of the Schrödinger equation. Time-depending approximation methods. Density matrix.

Objectives (and/or specific learning outcomes)

Understanding the basic principles of quantum mechanics and learning the formalism.

Pre-requisits and co-requisits

Pre-requisites courses

PHYS-H200 | Physique quantique et statistique | 5 crédits

Teaching method and learning activities

Theory course and exercise assignments.

References, bibliography and recommended reading

J.-L. Basdevant et J. Dalibard, Mécanique Quantique (École Polytechnique, 2008)

D. Baye, Mécanique quantique Première partie: Notions de base (PUB)

C. Cohen-Tannoudji, B. Diu et F. Laloë: Mécanique quantique I et II (Hermann, 1977)

Other information

Contact(s)

Nicolas CERF, E-mail: nicolas.cerf@ulb.ac.be

Evaluation method(s)

Other

Evaluation method(s) (additional information)

Written exam (June session) and oral exam (August session)

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the Brussels School of Engineering

BA-IRCI | Bachelor in Engineering Sciences | option Bruxelles/unit 3