

GS_Quantum_UE_Quantum Labworks



Level
Baccalaureate
+4



ECTS
3 credits



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



Semester
Printemps

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX8NQAF

Presentation

Description

The goal of this course is to offer a pool of advanced quantum labworks covering a broad field of topics: quantum materials, quantum engineering, quantum information and quantum technologies.

Students will attend from 5 to 7 labworks (depending on the number of students) among the ones listed below:

- **Labwork 1:** 2D Materials 1, atomic force microscopy and Raman spectroscopy on graphene, F. Marchi and N. Bendiab
- **Labwork 2:** 2D Materials 2, scanning tunneling microscopy on graphene bilayers, V. Renard
- **Labwork 3:** Hall effect, magnetoresistance of semiconductors, A. Kuhn
- **Labwork 4:** Superconductivity, evidence of the Meissner effect, A. Kuhn
- **Labwork 5:** Quantum optics 1, generation of entangled photon pairs using non-linear optics, P. Segonds
- **Labwork 6:** Quantum optics 2, entanglement and Bell inequalities, D. Ferrand
- **Labwork 7:** Quantum oscillations in topological materials, A. Pourret
- **Labwork 8:** Photon bunching in cathodoluminescence, G. Jacopin

The detailed planning will be established after the start of the academic year.

Course parts

TP	Practical work (TP)	28h
Period : Semester 8		

Useful info

Campus

› [Grenoble - University campus](#)