




6 credits

45.0 h + 15.0 h

Q1

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|-----------------------------|---|
| Teacher(s) | Bayot Vincent ;Piroux Luc ; |
| Language : | French |
| Place of the course | Louvain-la-Neuve |
| Main themes | First part : Cryophysics Introduction Cryogenic liquids Properties of materials at low temperature Cooling Thermometry Low temperature experiments Second part : Superconductivity 1. Main experimental phenomena associated to the superconducting state 2. Theoretical models of superconductivity 3. Macroscopic quantum phenomena in superconductors 4. Mesoscopic superconductivity (superconducting thin films, nanowires and dots) 5. Main applications of superconductivity Lab demonstrations and experimental aspects |
| Aims | 1 Provide the physical background cryogenic systems and related low temperature physics. Overview of the main physical phenomena associated to superconductivity in solids and nanostructures; link with the main applications of superconductors. ----- <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i> |
| Bibliography | <ul style="list-style-type: none"> • Notes de cours sur moodle |
| Other infos | Prerequisite: basic knowledge in physics of condensed matter (for instance : PHY 2342 ou MAPR 1492) Support : slides, textbook, notes |
| Faculty or entity in charge | PHYS |

| Programmes containing this learning unit (UE) | | | | |
|--|------------------------|---------|--------------|---|
| Program title | Acronym | Credits | Prerequisite | Aims |
| Master [120] in Physical Engineering | FYAP2M | 6 | |  |
| Master [120] in Chemical and Materials Engineering | KIMA2M | 6 | |  |
| Master [120] in Physics | PHYS2M | 6 | |  |