PHYS-631 Fundamentals of superresolution optical microscopy and Scanning Probe Microscopy
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Cursus Sem. Type
Photonique Obl.
Physique Obl.

Language English
Credits 2
Session Multiple
Exam
Workload 60h
Hours 32
Lecture 14
Exercises 10
Practical work 8
Number of positions 20

Frequency
Every year

Remarque
Next time: Spring

Summary
The course starts from general discussion of the microscopy spatial resolution problem and different proposals to beat classical criteria in the field. Afterwards, modern scanning probe microscopy methods are discussed.

Content


5-6. Atomic Force microscopy and its modifications. AFM cantilevers, angular detection methods and their sensitivity. Contact and non-contact imaging modes. How to pass from 3D dithered beam to simple 1D oscillator when discussing AFM results.


Keywords
far field and near-field microscopy, scanning probe microscopy, superresolution, force spectroscopy

Learning Prerequisites
Important concepts to start the course
The course is of an introductory character (actually almost each topic here deserves its own course) so no special knowledge are presupposed from students, just a course of general physics at the level of Physics Department.

Resources

Websites

• [http://will be prepared on Moodle](http://will be prepared on Moodle)