



LABORATORY OF QUANTUM PHYSICS I

Enrollment year	2014/2015
Academic year	2014/2015
Regulations	DM270
Academic discipline	FIS/01 (EXPERIMENTAL PHYSICS)
Department	DEPARTMENT OF PHYSICS
Course	
Curriculum	DIDATTICA E STORIA DELLA FISICA
Year of study	1°
Period	1st semester (13/10/2014 - 23/01/2015)
ECTS	6
Lesson hours	72 lesson hours
Language	ITALIAN
Activity type	ORAL TEST
Teacher	GALLI MATTEO (titolare) - 6 ECTS
Prerequisites	Basic notions of quantum physics, electromagnetism, optics.
Learning outcomes	Learning of basic concepts and principal methodologies of experimental physics through the realization of some fundamental experiments in quantum condensed matter physics.
Course contents	Realization of some fundamental experiments in quantum condensed matter physics. Hydrogen atom: study of the Balmer series, experimental verification of the Bohr hypothesis and determination of the Rydberg constant. Zeeman effect: study of the atomic level splitting of Sodium and Cadmium in a constant magnetic field and determination of the Bohr magneton. Solid-state laser: study of the spontaneous and stimulated emission, determination of optical gain, determination of the L-L curve and lasing threshold. Study of the coherence properties of laser light. The course will also focus on some important experimental and theoretical aspects concerning optics, electronics, optoelectronics,

	experimental physics, noise reduction and data analysis.
Teaching methods	=
Reccomended or required readings	=
Assessment methods	A scientific report on one of the realized experiments will be required at the end of the course. The examination consists in the oral presentation of the scientific report, focusing in particular on the experimental methodologies employed.
Further information	A scientific report on one of the realized experiments will be required at the end of the course. The examination consists in the oral presentation of the scientific report, focusing in particular on the experimental methodologies employed.
Sustainable development goals - Agenda 2030	\$lbl_legenda_sviluppo_sostenibile