



Master Nanosciences and Nanotechnologies

Aix-Marseille Université

Prof. Laurence Masson

Master Nanosciences and Nanotechnologies in Aix-Marseille University

Department of Physics

Master of Physics

Master of Instrumentation,
Measurement, Metrology

Master of Networks and
Telecommunications

Department of Chemistry

Master of Chemistry

Master of Process Engineering

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graph TD; A[Department of Physics] --> D[Master of Nanosciences and Nanotechnologies]; B[Department of Chemistry] --> D; D --> E[At the interface of physics and chemistry  
Based on the research activity at AMU in the fields of materials and nanomaterials];
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Master of Nanosciences
and Nanotechnologies

- At the interface of physics and chemistry
- Based on the research activity at AMU in the fields of materials and nanomaterials

Master Nanosciences and Nanotechnologies

3 programs

Program EMN

**Engineering of Materials
and Nanotechnologies**

physico-chemistry of
materials/nanomaterials
elaboration-characterization

Courses M2:

Materials and devices for
energy
Materials and health
Materials and durability

Program NQE

**Nanoscale and Quantum
Engineering**

Fondamental approach
of nanomaterials

Courses M2:

Quantum nanoelectronics
Nano-objects (STM/AFM, TEM)
Nanofabrication
Spintronics
Advanced numerical methods
and simulation
Nanophotonics
Nanobiosciences

Erasmus Mundus

Program CNE

**Chemical Nano-
Engineering**

Design and chemical
synthesise of nanosystems

Semester 1: Aix-Marseille University

Semester 2 : Wroclaw Univ. of
Science and Technology (Poland)

Semester 3 : University Roma
Tor Vergata

Semester 4 : Master thesis

AMU : Bogdan Kuchta

dpt Chemistry

bogdan.kuchta@univ-amu.fr

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Master Nanosciences et Nanotechnologies

Ecole des Mines
Gardanne

Centre Microélectronique
de Provence

CARTE DES SITES de la faculté des sciences

Aix-Marseille Université

ICR
IM2NP
MADIREL
NanoTechmat
Spectropole

IO lab

CINaM
PLANETE



Campus AMU



Sites faculté des sciences

CAMPUS
AIX-EN-PROVENCE

Site
Montperrin

CAMPUS
MARSEILLE-ÉTOILE

Site
Saint-Iérome

Site
Chateau Gombert

CAMPUS
MARSEILLE-CENTRE

Site
Saint-Charles

CAMPUS
MARSEILLE-TIMONE

Site
Aubagne

CAMPUS
MARSEILLE-LUMINY

Site
Luminy

Master staff

Master Nanosciences and Nanotechnologies	Program NQE Nanoscale and Quantum Engineering	Program EMN Engineering of Materials and Nanotechnologies
Laurence Masson CINA M/dpt Physics laurence.masson@univ-amu.fr	Fabienne Michelini IM2NP/dpt Physics fabienne.michelini@univ-amu.fr	Florence Vacandio MADIREL/dpt Chemistry florence.vacandio@univ-amu.fr

M1/M2	NQE	EMN
M1	Luc Favre IM2NP/dpt Physics luc.favre@univ-amu.fr	Florence Vacandio MADIREL/dpt Chemistry florence.vacandio@univ-amu.fr
M2	Fabienne Michelini IM2NP/dpt Physique fabienne.michelini@univ-amu.fr	Virginie Hornebecq MADIREL/dpt Chimie virginie.hornebecq@univ-amu.fr

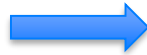
Administrative staff

M1-M2	Sylvie Le Gall	sylvie.le-gall@univ-amu.fr
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Teaching team

AMU – Faculty of sciences

Ecole des Mines - Gardanne
(Partnership – courses M2)



~ 70 teachers researchers

+ people coming from industry

Laboratories supporting the master :

IM2NP : Institut Matériaux Microélectronique Nanoscience de Provence

CINaM : Centre Interdisciplinaire de Nanoscience de Marseille

MADIREL : Matériaux divisé, interfaces, réactivité, électrochimie

ICR : Institut de Chimie Radicalaire



Institut Matériaux Microélectronique Nanosciences Provence



Laboratories partners :

BIP, CPT, CEREGE, Institut Fresnel, LAI, LP3, PIIM, ...

Master Nanosciences and Nanotechnologies

B.Sc. in Physics, Chemistry, Physics – Chemistry, Engineering Sciences



	Nanoscale and Quantum Engineering (NQE)			Engineering of Materials and Nanotechnologies (EMN)
S1	COMMON CORE NQE/EMN (courses in french)			
S2	CC NQE (French) 1.5 month Internship	Optional course (French) 6 ECTS	5 ECT S	CC EMN (French) 3 month Internship
S3	CC NQE (English)	Optional course (English) 8 ECTS	6 ECTS	CC EMN (French)
S4	CC NQE (English) 4 month Internship	Optional courses (English) 2x3 ECTS		CC EMN 6 month Internship

M2 NQE : 100 % taught in english

M2 IMN = « alternance » possible
50% courses + 50 % in industry

Number of students

Program/year		Students (average over the past 3 academic years)
M1 EMN <i>Engineering of Materials and Nanotechnologies</i>	} 2/3 from AMU	~ 24
M1 NQE <i>Nanoscale and Quantum Engineering</i>		~ 12
M2 EMN <i>Engineering of Materials and Nanotechnologies</i>		~ 24
M2 NQE <i>Nanoscale and Quantum Engineering</i>		~ 14

M2 internships

M2 NQE (4 months) :

- ~ 2/3 in academic laboratories
- ~ 1/3 in industry (STMicroelectronics, ..)
- 1 internship abroad (Univ. Sherbrooke - Canada)

M2 EMN (6 months) :

- ~ 2/3 in industry (STMicroelectronics, ..)
- ~ 1/3 in academic laboratories
- 1 internship abroad (J. Stefan Institute - Slovenia)

After the master (2019-20)

M2 NQE (13 graduates) :

- 3 PhD - partnership academic Lab/Industry
- 4 PhD academic Lab AMU (CINaM, IM2NP) and Lyon
- 2 PhD CEA (Saclay, Grenoble)

M2 EMN (15 graduates) :

- 5 PhD - partnership academic Lab/Industry
- 1 PhD academic Lab
- 2 recruitments engineer (STMicroelectronics, ...)

Carrer opportunities

- Research and R&D (after a PhD)
- Engineer in industry (project management, quality control, production, consulting, ...).
- Material Science domain: energy, nano- and microelectronics, information/communication, environment, health.

Thank you for your
attention

