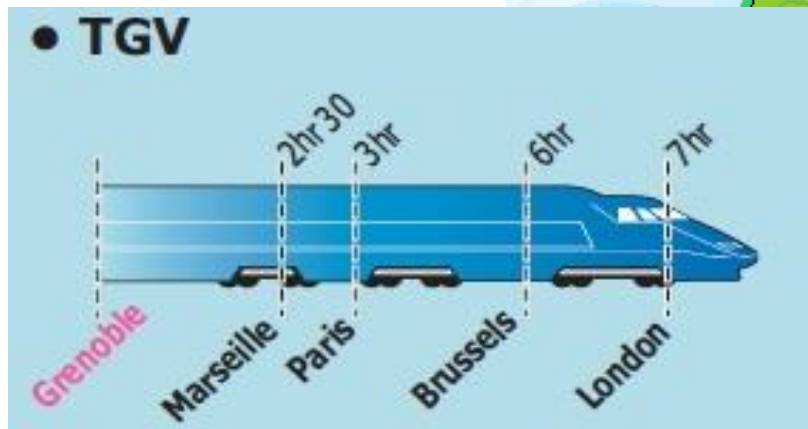




EMNano+ Master Program @ University Grenoble-Alpes

General Informations about Grenoble and UGA





Grenoble





Grenoble

400 000 people

1 of 5 is a student

25 000 R&D jobs

France's highest concentration

200 research Labs

European
Research Facilities

Grenoble

400 000 people

1 out 5 is a student

25 000 R&D jobs

France's highest concentration

Museums, Theaters

Jazz festival (Vienne)

10 ski resorts < 40km



Major area for research, advanced technologies and higher education...

59 000 students
 10000 international students

7500 staff members

23 international
 Master's programs

1st University in France
 in 11 fields including
 Nanoscience-Nanotechnology

Top 150 universities in the world
Shanghai Ranking of World Universities

33rd most innovative university in Europe
Thomson Reuters

Top 50 worldwide in 6 subjects
 Remote Sensing, Earth Sciences, Metallurgical Engineering, Physics, Clinical Medicine, Quantum Engineering

- **100+** laboratories
- **75** research centers
- **1** teaching hospital
- 400 programs, 20 of which totally taught in English
- Over 70 International Master Degrees
- 128 international collaborative degree programs

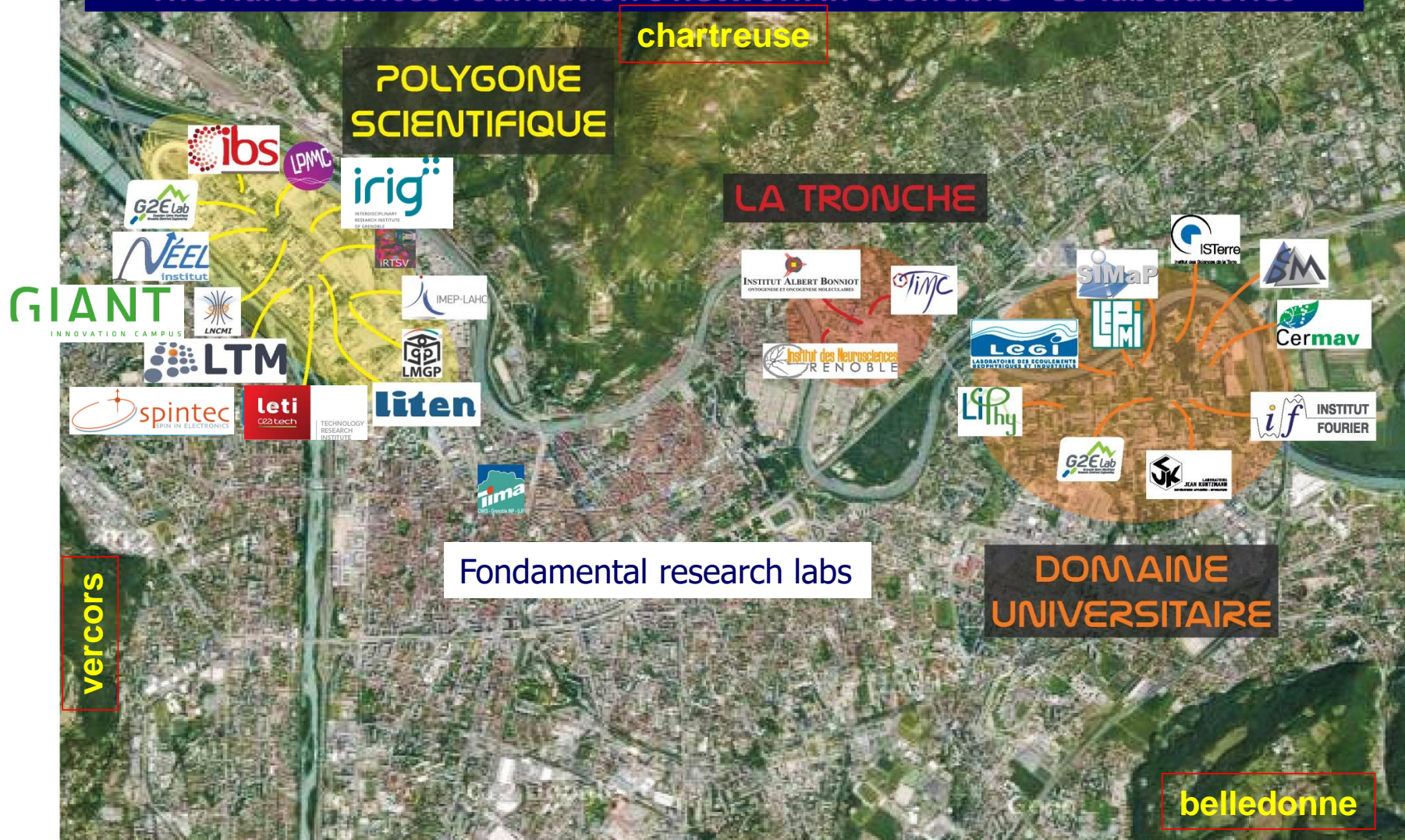
UGA Interdisciplinary Strengths

- Sustainable development & society
- Health, well-being and technology
- Digital Technologies
- Innovation

59,000 students, of which
35,500 undergraduates
20,600 graduates
2,900 PhD students
10,000 international students

<https://www.univ-grenoble-alpes.fr/english/>

The Nanosciences Foundation's network in Grenoble = 33 laboratories



See online pdf file dedicated **with online web links on labs**





The Nanosciences Foundation's network in Grenoble = 33 laboratories



See online pdf file dedicated **with online web links on labs**

Academic Research laboratories in Nanoscience-Nanotechnology

- More than 33 academic laboratories affiliated with CNRS, UGA or CEA working in **Nanoscience** See map on the next slide and the third pdf file dedicated to the study program **with web links**.
 See also <https://master-nanosciences.univ-grenoble-alpes.fr/nano-grenoble/>

- 4 European facilities: ESRF, ILL, EMBL, EMFL:   EMBL  

- Micro-nanoelectronics centers and platforms: CEA Leti, CIME Nanotech, ST ...



TECHNOLOGY
 RESEARCH
 INSTITUTE



- 3 Laboratories of excellence (federative actions for research including PhD programs)

- **Labex Gral:** Grenoble alliance for integrated structural and cell biology (Molecular machines dynamic, self organization of Living Systems: <https://www.labex-gral.fr/ongoing-call/>)
- **Labex Lanef:** Photonics, spintronics, nanoelectronics, energy, cryogeny, nanosensors, nanomaterials... <http://www.grenoble-lanef.fr/>
- **Labex Arcane:** Biology/chemistry interface, bio-inspired chemistry, <https://www.labex-arcane.fr/en>



- 3 European pre-doctoral schools: [Esonn](#), Hercules, Erca

Quantalps consortium



QuantAlps

~230 faculty members
18 laboratories



<https://quantalps.univ-grenoble-alpes.fr/>

Quantum technologies in Grenoble

An outstanding ecosystem for **Education**

Quantum technologies in Grenoble

An outstanding ecosystem for **Education**

QuantEdu-France national program: Education and training to fulfill the strategic skill needs of research and industry in France: **57 M€ for 5 years Sept 2022 -> Sept 2027**

1. **Université Grenoble Alpes***
2. **Institut Polytechnique de Grenoble**
3. Université Paris Saclay
4. Institut Polytechnique de Paris
5. Ecole Polytechnique
6. Ecole Nationale Supérieure de techniques avancées
7. Sorbonne Université
8. Université de Paris
9. Université Paris Sciences et Lettres
10. Université Sorbonne Paris Nord
11. Université de Montpellier
12. Université fédérale de Toulouse Midi-Pyrénées
13. Université de Bordeaux
14. Université Côte d'Azur
15. Aix-Marseille Université
16. Ecole Centrale de Marseille
17. Université de Strasbourg
18. Université Bourgogne Franche-Comté
19. Ecole Normale supérieure de Lyon
20. Université de Lille
21. Telecom Paris



* **Coordinating University**

<https://quantalps.univ-grenoble-alpes.fr/quantedu/> [contact: franck.balestro@univ-grenoble-alpes.fr](mailto:franck.balestro@univ-grenoble-alpes.fr)



International PhD education

- ▶ **13 Doctoral Schools**
- ▶ **Over 260** joint doctoral thesis with a foreign university
- ▶ PhD students can also apply for the label "European Doctorate" or "Doctor Europaeus".

Key Figures

- 3 000 PhD Students, 47% of whom are International
- + 300 Joint PhDs (cotutelle)
- 13 Doctoral Schools, with more 90 scientific specialities
- + 100 Research Units
- Between 600 and 700 PhD Defenses per year
- + 100 HDR defended per year
- + 98% employment after 36 months



Campus life: sports

- ▶ UGA offers more than **45** formal sports classes, plus an additional **30+** ungraded activities for students.
- ▶ Access to Olympic swimming-pool, climbing walls, several sport fields and equipment.
- ▶ A wide variety of **reduced-cost activities** are also available for faculty and staff and their families.
- ▶ More than 500 student athletes welcomed each year





EMNano+ Master Program @ University Grenoble-Alpes

Practical informations about your venue in Grenoble



Emails, secretary and date of the welcome session

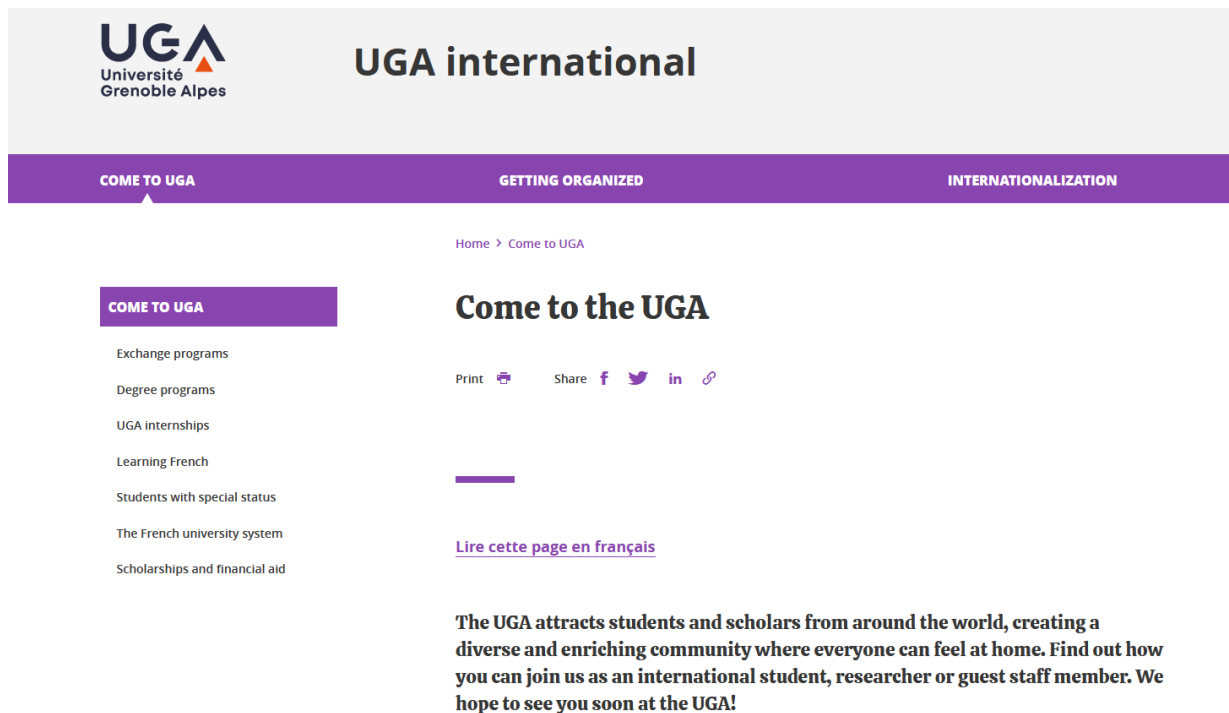
- **Email communication:** secretary of the Master: Mrs Delphine Curinier,
phitem-master-nano@univ-grenoble-alpes.fr
Local coordinator Prof. David Ferrand,
david.ferrand@neel.cnrs.fr

Always sent your messages regarding the secretary to both addresses !

- **Welcome session** of the Master: week of **Monday 2nd of September 2024.**
You will receive a confirmation by email.

UGA international web site & International Student and Scholar Office (ISSO)

This is the web site dedicated to all international students. If you send emails, please remind ISSO that you are an Erasmus-mundus student from the EMM-Nano+ program and put me in copy.



UGA international

COME TO UGA GETTING ORGANIZED INTERNATIONALIZATION

Home > Come to UGA

Come to the UGA

Print Share

[Lire cette page en français](#)

The UGA attracts students and scholars from around the world, creating a diverse and enriching community where everyone can feel at home. Find out how you can join us as an international student, researcher or guest staff member. We hope to see you soon at the UGA!

- Type « Getting organized » then « services and centers »

[International Students & Scholars Office \(ISSO\)](#)

In Grenoble and Valence



The International Students & Scholars Office (ISSO) of Université Grenoble Alpes is entirely dedicated to international students, doctoral students, researchers and their accompanying family.

INTERNATIONAL STUDENTS & SCHOLARS OFFICE (ISSO)

Web site: <https://international.univ-grenoble-alpes.fr/getting-organized/service-centers-on-campus/>

Email: isso@univ-grenoble-alpes.fr

Look at UGA international news: <https://international.univ-grenoble-alpes.fr/actualites-/actualites-740987.kjsp>

See also the student association « Integre » : <https://www.integre-grenoble.org/en>

- **Visa: done individually in Brussels (for those in Leuven) with your admission letter and Housing certificate received from move-on.**
- Sometimes, the French embassy asks also for the living costs in Grenoble. Our estimate is about **600 Euros/ month for 12 months.** Remember that you will be also paid **591 Euros / months during the 4/5 months of your Master internship (French law if the internship is done in France).** Please ask us **a supporting letter about it** if you need it for the visa.

Contact: « Consulat général de France »

<https://bruxelles.consulfrance.org/Applying-for-a-French-visa-in-Brussels>

The screenshot shows the official website of the French Consulate General in Brussels. The header includes the consulate's name and logo, and navigation links for various services like 'Visa démarches', 'Etat civil', and 'Droit de vote'. The main content area is titled 'Applying for a French visa in Brussels' and provides information about the application process, including a link to the official website 'France-visas'. A sidebar on the right offers 'Accès rapide' to various services. The page is in French and includes a search bar at the top right.

12 months intra-european mobility applications

- **Possible if you have a two year permit of stay in Belgium.**
Please send me an email asap if you are interested by this option
Note that you won't be eligible to CAF support for your housing
Not Recommended by UGA international office !



Notification de la mobilité en France d'un étudiant étranger autorisé à séjourner dans un autre Etat membre de l'Union Européenne
(Art. L. 310-1, L. 330-0 et R. 310-7-4 du code de l'entrée et du séjour des étrangers et du droit d'asile)

Etablissement accueillant l'étudiant en France	
Dénomination : Université Grenoble-Alpes	
N° SIRET (ou UAI) : 1 3 0 0 2 6 0 8 1 0 0 0 1 3	
Adresse électronique de contact : david.ferrand@univ-grenoble-alpes.fr	
Téléphone : 04 56 38 70 45	
Adresse : 621 avenue Centrale	
Code postal : 38400	
Commune : Saint-Martin-d'Hères	
Enseignement suivi par l'étudiant : Master Erasmus-mundus EMM-Nano+	
Niveau : Master 2	
Identité de l'étudiant	
Nom de famille :	
Prénom(s) :	
Sexe <input type="checkbox"/> M <input type="checkbox"/> F	
Nationalité :	
Adresse électronique :	
Titre de séjour (mention) :	
N° :	
Expirant le :	
Délivré par (Etat membre de l'UE) :	
Mobilité de l'étudiant en France	
Date envisagée de début de mobilité : 01/09/2023	
Date de fin de mobilité : 31/08/2024	

Ce formulaire est à transmettre avec les pièces justificatives (page 2) au ministère de l'intérieur par voie électronique à l'adresse suivante : pointdecontact-sejour-dgeif@interieur.gouv.fr

L'absence de réponse dans un délai de 30 jours vaut décision implicite d'acceptation.

Décision prise par le ministère de l'intérieur concernant la demande de mobilité	
<input type="checkbox"/> L'étudiant est autorisé à séjourner en France pour la durée de mobilité déclarée.	
L'étudiant est enregistré dans l'application de gestion des étrangers en France (AGDREF) sous le n°	
L'étudiant est autorisé à travailler dans la limite de 60% du temps de travail annuel	
<input type="checkbox"/> L'étudiant n'est pas autorisé à séjourner en France pour les motifs suivants :	

Fait à Paris, le	
Signature et cachet de l'autorité compétente	
Décision de retrait de l'autorisation de mobilité prise par le ministère de l'intérieur	
<input type="checkbox"/> L'étudiant n'est plus autorisé à séjourner en France à compter du :	
La décision de retrait et ses motifs ont été notifiés par lettre LR avec AR n°	
du :	
Fait à Paris, le	
Signature et cachet de l'autorité compétente	

I have to send by email a complete file for you to French Ministry of internal affairs including

The official form from the Ministry filled with your name and Belgium permit of stay number.

1. pdf copy of your passeport
2. pdf copy of your Residence permit card
3. pdf copy of a proof of financial resources (to live in France as a student) total threshold equivalent to 615 euros/month: if you have a Master scholarship, send me a pdf copy of your scholarship certificate (indicating somehow the amount per month) or join a document which can certify it.
4. pdf copy of your AIG insurance certificate (valid until the end of the 2nd year in september 2024, see Lenny Knecht)
5. pdf copy of a document certifying that you are presently enrolled in the EMM-Nano+ program.

Housing application: Move-on registration

EMM-Nano Erasmus-mundus program is part of the **priority exchange programs of UGA**. To apply for housing (in University student housing called Crous residence or in private sector), **YOU FIRST HAVE TO REGISTER TO THE PRIORITY STUDENT LIST USING THE MOVE-ON APPLICATION**. Before finalizing your choice of housing, ask for an **housing certificate**, if you need to apply for a Visa. Attribution of the housing before July 10th.

The procedure to register to move-on is the following: DEAD LINE May 30th, DO NOT MISS THE DEAD LINE ! (see email from phitem-international from April (th))

Please login in the platform : <https://uga.moveonfr.com/form/63d1409b9b306026974aef83/eng>

And follow the step indicated below:

Here are the steps to follow:

1. Registration on the right of the page: section [Inscription / Registration]
2. Reception of an email [Formulaire - Confirmation d'inscription/Confirmation of submission] from [noreply@uga.moveon4.com] – Please check your spams.
3. Confirmation of registration and creation of your password
4. Connection: with your login (email) and password
5. On "Information Forms", clic start on [Pre-registration for international collaborative degree programs 2024/25]

When completing the form :

1. Please, always choose the Faculty: PhITEM
2. On the Mobility programme, please choose: Echange Erasmus Mundus

You can save (at the bottom of page: button [save progress]), logout and return to your form.

Beware, once the application is submitted you cannot access the form anymore.

When you click [Submit] on the page [submit application] you have to wait few seconds/minutes before downloading the PDF version of your form.

Accommodation : Please note that you will be contacted in June to apply for accomodation. Do not forget to check your spams.

French Language Course :

We offer you 20 hours of French courses at CUEF (University Center of French Studies). You will get more information around the beginning of July, once your application is finished.

Housing application: Choose a student residence or go in the private sector

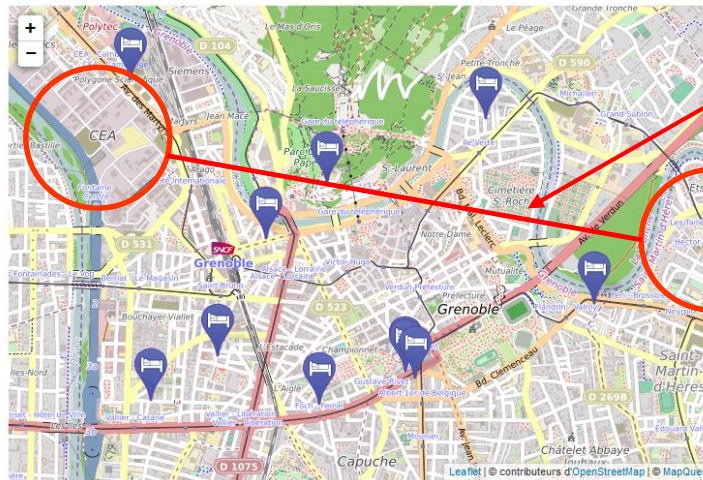
You will be contacted via email by studenthousing@univ-grenoble-alpes.fr in June 2024. Follow promptly the instructions. Do not miss this message and check your spams.

You can choose to book a room in a Crous student residence or rent an appartement in the private sector on your own, discuss with 2nd year students)

See the web site below sorry it is only in French but it is convenient to see the Crous residence location !)

<https://www.crous-grenoble.fr/se-loger/liste-de-nos-logements/>

« Presqu'île » or
 Scientific polygon
 Campus
 (CNRS, CEA, UGA)



Tram line B that connects both
 campus

Saint Martin d'Heres 's
 UGA campus

Choose: Crous residences “Grenoble **En ville**”, ie downtown in Grenoble (possibly not too far from Tram line B) which is quite convenient as your courses will be located both in Scientific polygon (Presqu'île) or in Saint Martin d'Heres UGA campus. Choose otherwise “**Grenoble Domaine Universitaire**” (UGA campus). **DO NOT CHOOSE RESIDENCE LE RABOT !**

- Type of housing
- Single room, studio, T1 or T2 (with somebody) at Crous or in the private sector...
 - Make your choice **ON TIME** with **studenthousing**.
 - Possibly ask 2nd year EMM students for advices about the choice of the residence.

- **At the end of June**, you will receive an email about registration.

Please send me back the following documents to me before **12th of July** with

- A certificate of your insurance @AIG valid for the academic year 2024-2025
- A copy of your Bachelor transcript in English (with a scan of the diploma).
- A scan of your ID or passport.
- UGA registration form filled

- **Last week of August**, you will be registered so that you can pick up your student card, web access account, registration certificate directly at your arrival in September.

PLEASE NOTE THAT UGA WILL BE CLOSED FROM 19th OF JULY TO 19th OF AUGUST !

Master scholarship programs in Grenoble (for self supporting students)

- Call for Master scholarships on Quantum engineering-Quantum information

- 5000 Euros plus the gratification for the Master 2 internship

- Application dead line May 31st (first call), see this [web page](#)**

- Labex GRAL (Bionanotechnology students)

- 5000 Euros plus the gratification for the Master 2 internship

- See the web-site : <https://www.labex-gral.fr/master2-24-25/>**

- Deadline: May 20th, more informations: contact first** Prof J. Geiselmann, hans.geiselmann@univ-grenoble-alpes.fr

See also this [UGA web page](#)



EMNano+ Master program

2nd year program at UGA

See the local EMM-Nano+ web page: [click here](#)

2nd year EMM students 2024-2025

- EMM students to be register in the Bionanotechnology track:

Pereira Lima	Juan Pablo
Borkar	Yogen Milind
Hidayathullah	Mohamed Amsath Haseef
Schwermer	Paul Herbert
Donnay	Eva

- EMM student to be register in the Quantum Engineering track:

Roy	Kalpajit
Celeste Risoli	Lucia Elisa
La Rocca	Francesco
Casey	Brianna

- EMM student to be register in the Nanochemistry track:

Madrigalejo	Jean Cedric
Maulida	Pramitha Yuniar Diah
Hasan	Syeda Unaiza
Bettinzoli	Laura
Low	Jensie

2nd year EMM Nano Master 2 program

Nanomaterials and nanochemistry		Quantum computing and nanoelectronics				Bionanotechnology and Nanomedicine		
Option Nanomaterials U Barcelona	Option Nanochemistry UGA Grenoble	Option Organic and molecular electronics TU Dresden, Chalmers	Option Quantum computing Chalmers	Option Quantum and nanoscale engineering UGA Grenoble	Option Nanoelectronics TU Dresden	Option Biophysics TU Dresden	Option Bionanotechnology JFU Grenoble	Option Nanopharmacotherapy U Barcelona
Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven	Specific Courses 15 ects compulsory + min 6 ects electives KU	Specific Courses 15 ects compulsory + min 6 ects electives KU Leuven
Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives	Broadening courses 15 ects electives
Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)	Master thesis (30 ects)

Common courses with the ~ 40 local Master 2 students registered for the local international Master program in Nanosciences-Nanotechnologies.

Detailed study program available on the EMM-Nano+ web page @UGA:

<https://master-nanosciences.univ-grenoble-alpes.fr/academic-program/emm-nano-/emm-nano--483724.kjsp?RH=3972980646879902>

EMM-Nano+ Quantum Engineering specialty



Contact: Prof. David Ferrand david.ferrand@neel.cnrs.fr

**Goal: quantum information, quantum engineering,
nanophysics, quantum devices**



Quantum information-quantum engineering core courses:

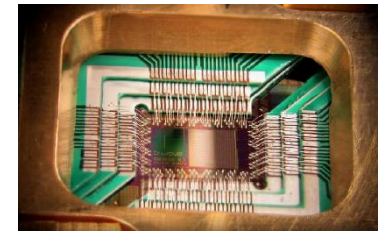
Complete program of lectures, Labworks and seminars covering the entire spectrum from fundamental quantum physics to experimental implementations of quantum bits and algorithms.

Local coordinator: **Prof. F. Balestro**

Your syllabus can be **fully dedicated** to **quantum engineering-quantum information**.
but it can mix also broadening courses on **Nanophysics or advanced microelectronics**

Nanophysics broadening courses

Broadening courses on the physical properties (experiment & modeling), growth and advanced characterization of nanostructures, covering topics from transport, nanophotonics nanomagnetism to applications (energy, microelectronics,...).



Local coordinator: **Prof. H. Bea**

EMM-Nano+ Quantum and Nanoscale Engineering specialty



Contact: Prof. David Ferrand david.ferrand@neel.cnrs.fr

• First Semester – September to January 30 ECTS + 15 ECTS Elective/broadening courses

Solid State Qbits	3 ECTS
Quantum condensed matter	3 ECTS
From micro-nanofabrication in research labs to VLSI	3 ECTS
Thematic and interdisciplinary project (seminars, Quantum Labworks)	6 ECTS

Completely new 15 ECTS specializing courses !

- Quantum optics (3 ECTS)
- Open quantum systems (3 ECTS)
- Quantum algorithms (3 ECTS)
- Microwaves and cryoelectronics (3 ECTS)
- Advanced semiconductor devices (3 ECTS)
- Nanomaterials and energy (3 ECTS)
- Advanced characterization techniques (3 ECTS)
- Nanophotonics and plasmonics (3 ECTS)
- Nano-magnetism and spintronics (3 ECTS)
- Elaboration of nanostructures /
Physics of 2D materials (3 ECTS)
-

(37 second year elective courses declared on Toledo)

• Second Semester – 4/5 month full time internship

EMM-Nano+ Quantum and Nanoscale Engineering specialty



Contact: Prof. David Ferrand david.ferrand@neel.cnrs.fr

<https://master-nanosciences.univ-grenoble-alpes.fr/quantum-and-nanoscale-engineering-emm-nano-specialty-853034.kjsp?RH=1612965420476>

- Federative institution web sites:

QuantAlps federation: <https://quantalps.univ-grenoble-alpes.fr/>

Labex Lanef: <https://www.grenoble-lanef.fr/>

Quanteca teams: <https://neel.cnrs.fr/equipes-poles-et-services/circuits-electroniques-quantiques-alpes-quanteca>

INSTN/CEA <http://www-instn.cea.fr/formations/formation-par-la-recherche/doctorat/liste-des-sujets-de-these.html> (french)

Minatec: <https://www.minatec.org/en/all-opportunities/>

- Selection of Grenoble Laboratories (quantum, physics, Nanophysics, microelectronics, material science,...)

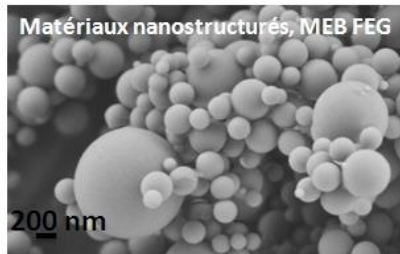
ST-Microelectronics (ST)	https://www.st.com/content/st_com/en/about/careers.htm
Neel Institute (Neel)	www.neel.cnrs.fr
Neel Institute– Condensed Matter and Low Temperatures (MCBT)	https://neel.cnrs.fr/institut-neel/les-departements-scientifiques/mcbt
Neel Institute –Physics Light Matter (PLUM)	https://neel.cnrs.fr/institut-neel/les-departements-scientifiques/plum
Neel Institute– Quantum electronics, Surfaces and spinTronics (QUEST)	https://neel.cnrs.fr/institut-neel/les-departements-scientifiques/quest
High Magnetic Fields National Laboratory (LNCMI)	http://lncmi.cnrs.fr/
Institut de recherche interdisciplinaire de Grenoble (IRIG)	https://www.cea.fr/drf/IRIG/Pages/Presentation.aspx
IRIG-Laboratoire PHotonique ELectronique et Ingénierie QuantiqueS (PHELIQS)	https://www.cea.fr/drf/irig/english/Pages/Laboratories/Pheliqs.aspx
IRIG-Spintronics and Component Technology (Spintec)	https://www.cea.fr/drf/irig/Pages/Laboratoires/Spintec.aspx
IRIG-Modeling and Exploration of Materials Laboratory (MEM)	https://www.mem-lab.fr/en
IRIG-Atomistic Simulation Laboratory (LSIM)	https://www.mem-lab.fr/en/Pages/L_SIM/Presentation.aspx
Electronics and Information Technology Laboratory (LETI)	www-leti.cea.fr
Condensed Media Physics and Modeling Laboratory (LPMMC)	lpmmc.grenoble.cnrs.fr
Microelectronics Technologies Laboratory (LTM)	www.ltm-cnrs.fr
Interdisciplinary Physics Laboratory (Liphy)	www-liphy.ujf-grenoble.fr/
Institute of Microelectronics, Electromagnetism and Photonics (IMEP-LAHC)	www.imep-lahc.grenoble-inp.fr/
Laboratory of Innovations for New Energy Technologies and Nanomaterials (LITEN)	www-liten.cea.fr/
Laboratory of Materials and Physical Engineering (LMGP)	www.lmgp.inpg.fr/
Computer Technology, Microelectronics for Computer Architecture (TIMA)	www.tima.imag.fr
Techniques of Imaging, Modeling and Cognition (TIMC)	www-timc .imag.fr
Grenoble Electrical Engineering Laboratory (G2ELAB)	www.g2elab.grenoble-inp.fr/

Jérôme Chauvin

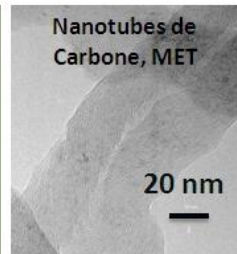
Jerome.C Chauvin@univ-grenoble-alpes.fr

Goal: complete overview of the elaboration, characterization, properties and applications of a large variety of bulk materials and nano-objects.

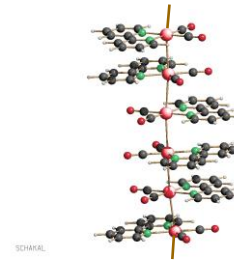
<https://master-nanosciences.univ-grenoble-alpes.fr/nanochemistry-emm-nano-specialty-853039.kjsp?RH=1554919096937>



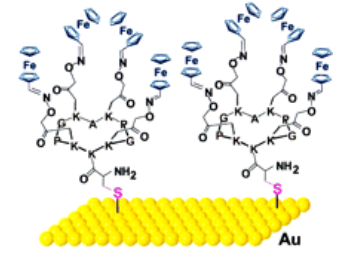
Nanoparticules



CNT



Molecular wires



Surface functionalization

Elaboration of bulk materials (**molecular**, metallic, inorganic, hybrides, biologic) and their nanostructuration (films, wires, **nanoparticles**, unique molecules)

Caractérisation: spectroscopies, local probes

Properties: (electro)chemical, physical, biological

Topics: **Functional** Materials, composites, (solar) energy, magnetism, molecular and micro-electronics, catalysis, sensing and bioanalysis, ...



Jérôme Chauvin

Jerome.C Chauvin@univ-grenoble-alpes.fr

<https://master-nanosciences.univ-grenoble-alpes.fr/nanochemistry-emm-nano-specialty-853039.kjsp?RH=1554919096937>

• **First Semester – September to January 30 ECTS**

+ 15 ECTS Elective courses

Molecular Nanomaterials 6 ECTS
 (molecular magnetism, electron transf., Xray diffraction)

Functional **Nanoparticles** 3 ECTS
 (applications in energy, catalysis and theranostics)

Advanced **Functional** Nanomaterials 3 ECTS

Nanosafety 3 ECTS

- **Research Training** (3 ECTS)
 - Polymers for nano-electronics (3 ECTS)
 - Nanocomposites materials (3 ECTS)
 - Surface functionalization (3 ECTS)
 - Nanomaterials and energy (3 ECTS)
 - From Nanofabrication in research labs to VLSI (3 ECTS)
 - Bio-Molecular interactions: methods and applications (3 ECTS)
 - Advanced characterization techniques for nanostructures (3 ECTS)
 - Advanced SC devices (3 ECTS)
 - Elaboration of nanostructures Physics of 2D materials (3 ECTS)
 - Nanopores and membrane technologies (3 ECTS)
 -
- (37 second year elective courses declared on Toledo)



Jérôme Chauvin Jerome.C Chauvin@univ-grenoble-alpes.fr

• **Second Semester – 4/5 month full time internship**

<https://master-nanosciences.univ-grenoble-alpes.fr/graduate-school-and-research/internships-in-nanochemistry-766586.kjsp?RH=1619194451005>

Topics devoted to nanomaterials centered either on synthesis and/or characterisation and/or functionality and/or application, many pluridisciplinary subjects with strong physical or biological concerns

Can be **started part-time (1-2 days/week) during the first semester (Research Training)**.

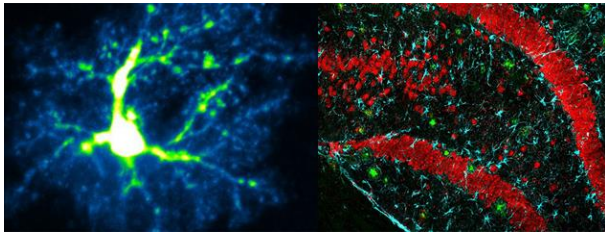
- Chemical Functionalization and Self-assembly of Nanoparticles for **electronic nose** (SYMMES)
- Investigate ligand-receptor interactions for the capture of circulating cells at the **blood vessel** wall (LiPHY)
- Construction of a molecular electrode for **hydrogen evolution** and uptake (LCMB)
- **Nanocaracterisation** of defects in MoS₂-type 2D semi-conductors by advanced photoemission, Raman spectrometry and photoluminescence (LETI)
- **Magnetic** nanostructures containing magnetic molecules (IN)
- Study of synthetic **RNA switches** for genetic regulation (LiPhy)
- Metal Organic Framework/Enzyme Electrodes for **Bioenergy** (DCM)
- Confined nucleation and growth of **molecular nanocrystals** for biophotonics (IN)
- Towards Bulk and Nanostructured Molecular Multiferroics (LNCMI) ...

• **Selection of Grenoble Laboratories:**

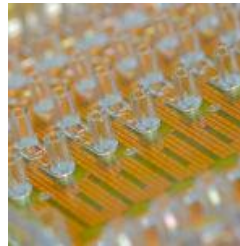
Plant Macromolecule Research Center (CERMAV)	www.cermav.cnrs.fr
Department of Molecular Chemistry (DCM)	dcm.uif-grenoble.fr
IRIG-Molecular Systems and Nanomaterials for Energy and Health (SyMMES)	https://www.cea.fr/drf/irig/Pages/Laboratoires/Symmес.aspx
Science and Engineering of Materials and Processes (SIMAP)	simap.grenoble-inp.fr/
Laboratory of Electro and Physico-chemistry of Materials and Interfaces (LEPMI)	lepmi.grenoble-inp.fr/
High Magnetic Fields National Laboratory (LNCMI)	http://lncmi.cnrs.fr/
Neel Institute (Neel)	www.neel.cnrs.fr
Laboratory of Pulp and Paper Science and Graphic Arts (L2GP)	https://pagora.grenoble-inp.fr/en/research
Biology and Biotechnology for Health Laboratory (Biosante)	https://biosante-lab.fr/en
IRIG-Modeling and Exploration of Materials Laboratory (MEM)	https://www.mem-lab.fr/en
Institut Laue-Langevin (ILL)	https://www.ill.eu/
European Synchrotron facilities (ESRF)	https://www.esrf.fr/Jobs/traineeships
Laboratory of Materials and Physical Engineering (LMGP)	www.lmgp.inpg.fr/
Institut de Biologie Structurale (IBS)	https://www.ibs.fr/
IRIG-Cell & Plant Physiology Laboratory (LPCV)	https://www.lpcv.fr/en
IRIG-Chemistry and Biology of Metals laboratory (CBM-lab)	https://www.cbm-lab.fr/en
Grenoble Interdisciplinary Research Institute (IRIG)	https://www.cea.fr/drf/IRIG/Pages/Presentation.aspx

Prof. Hans Geiselmann (hans.geiselmann@univ-grenoble-alpes.fr)

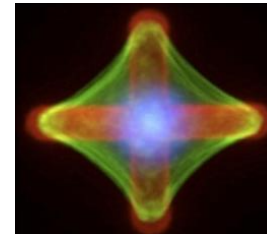
Goal: Biosensors, micro-fabrication, biomedical devices, mecano-biology, drug delivery, molecular markers, characterization of biological nano-materials



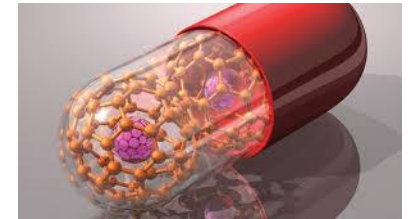
Cell engineering



Biosensors



micro-patterning



Drug delivery

- **Research** : more than 700 researchers in biomed, nanomed, biotech
- **Specialties:** Structural biology, biosensors, DNA origami, diagnostics, targeted drug delivery, neurosciences, mechano-biology
- **Career opportunities** : PhD, industry jobs in tissue engineering, therapeutics, diagnostics, ...



EMM-Nano+ Bionanotechnology specialty



Prof. Hans Geiselmann, hans.geiselmann@univ-grenoble-alpes.fr

<https://master-nanosciences.univ-grenoble-alpes.fr/bionanotechnology-emm-nano-specialty-853038.kjsp?RH=1613462564215>

• First Semester – September to January 30 ECTS

Bio-molecular interactions: 3 ECTS
 methods and applications

Biosensors high and through analysis 3 ECTS

Micronanofabrication 3 ECTS
 (12h courses & cell patterning labworks)

Surface Functionalization 3 ECTS

Nanosafety 3 ECTS

+ 15 ECTS Elective courses

- Machine learning (3 ECTS)
- Nanopores and membranes technol. (3 ECTS)
- Cell signaling (3 ECTS)
- Microfluidics (3 ECTS)
- Biomaterials Engineering (3 ECTS)
- Molecular markers (3 ECTS)
- Fundamentals of structural biology (3 ECTS)
- Optics for biological systems (3 ECTS)
- Characterization of biomolecular interactions at surfaces (3 ECTS)
- Physiology (3 ECTS)
- Neuroscience (3 ECTS)
- Research Training (3 ECTS)
-

• Second Semester – 4/5 month full time internship

(37 second year elective courses declared on Toledo)



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<https://master-nanosciences.univ-grenoble-alpes.fr/bionanotechnology-emm-nano-specialty-853038.kjsp?RH=1613462564215>

- Federative institution web sites:

Labex Graal <https://www.labex-gral.fr/>


INSTN/CEA <http://www-instn.cea.fr/formations/formation-par-la-recherche/doctorat/liste-des-sujets-de-these.html> (french)

- Selection of few Grenoble Nanobiotech Laboratories:

Grenoble Institut des Neurosciences (GIN)	https://neurosciences.univ-grenoble-alpes.fr/
Institut of Advances Biosciences (IAB)	https://iab.univ-grenoble-alpes.fr/
Institut de Biologie Structurale (IBS)	https://www.ibs.fr/
IRIG-Molecular Systems and Nanomaterials for Energy and Health (SyMMES)	https://www.cea.fr/drf/irig/Pages/Laboratoires/Symmес.aspx
Interdisciplinary Physics Laboratory (Liphy)	https://www-liphy.univ-grenoble-alpes.fr/?lang=en
Laboratoire des Matériaux et du Génie Physique (LMGP)	www.lmgp.inpg.fr/
Neel Institute (Neel)	www.neel.cnrs.fr
Exploring the Dynamics of Proteomes (EDyP)	http://www.edyp.fr/web/
IRIG-Cell & Plant Physiology Laboratory (LPCV)	https://www.lpcv.fr/en
IRIG-Chemistry and Biology of Metals laboratory (CBM-lab)	https://www.cbm-lab.fr/en
IRIG-Modeling and Exploration of Materials Laboratory (MEM)	https://www.mem-lab.fr/en
Alpine Ecology Laboratory (LECA-OSUG)	https://leca.osug.fr/
Techniques of Imaging, Modeling and Cognition (TIMC-IMAG)	https://www.timc.fr/en/laboratory-presentation
European Molecular Biology Laboratory Grenoble (EMBL)	https://www.embl.org/sites/grenoble/
Clinatec (Clinatec)	http://www.clinatec.fr/en/
Plant Macromolecule Research Center (CERMAV)	https://www.cermav.cnrs.fr/
Airyballe Technologies (Airyballe)	https://www.cea-tech.fr/cea-tech/english/Pages/success-stories/aryballe-technologies.aspx
Grapheal Technologies (Grapheal)	https://fr.grapheal.com/
Smartforce Technologies (Smartforce)	http://www.smartforcetechnologies.com/
Promise Proteomics (Promise)	https://promise-proteomics.com/

2nd year EMM Nano Master 2 program

- 1st Semester : **lectures** from September 2024 to January 2025
- 2nd Semester : **30 ECTS Master internship**: 4 month minimum up to 6 month maximum done from February to end of August, evaluation at the end of June or end of August
- One Master 2 course: most often 3 ECTS ~ 20-25 hours per semester.
sometimes 6 ECTS ~ 45 hours per semester.
- To be graduated, 120 ECTS in your ISP are needed over the two years

-  Depending on the **credit number acquired in Leuven** (from 54 up to 66 ECTS credits)
- Choose the number of courses **during the 1st semester** in order to complete your curriculum up to 120 ECTS credits: from 24 ECTS up to 36 ECTS
 - Choose only EMM Nano **courses listed in Leuven** (<http://www.emm-nano.org/>)
 - Be mandatory courses are **different in the 3 EMM-Nano+ specialities**

- **First semester exams:** First session done between December to end of January.
Second session in May.
- **EMM Nano passing rules:** final grade of the course has to be at least 10/20
in order to obtain credits
- **French for foreigners (FLE) courses are offered to EMM students outside EMM-Nano+ program**

The university offers you **20 hours of French courses** at the CUEF (University Center of French Studies). You will have to complete a French test sent by the CUEF. You will automatically be registered for these courses by taking the test. You can find the calendar 24/25 at this link : <https://cuef.univ-grenoble-alpes.fr/main-menu/our-french-courses/our-french-courses-1090643.kjsp?RH=1487667320690>

If you are interested: please to the test scheduled in July (date to be confirmed) :

➤ **Courses from September to december 2024 at CUEF.**