



# EIPHI graduate school

Engineering and Innovation through Physical Sciences, High-technologies, and cross-disciplinary research

EIPHI proposes 15 Master Degrees covering 5 research areas with a strong interdisciplinary content. Outstanding students will acquire a solid knowledge in various topics, ranging from fundamental to applied sciences, allowing them to build a successful career in R&D sectors.



## PHYSICS, MATHEMATICS and APPLICATIONS

Master degrees in theoretical and experimental physics or mathematics for physics, providing knowledge and lab expertise in photonics, non-linear physics, time & frequency metrology, micro/nano- and quantum technologies.

> 5 Masters: PPN, Maths4Phys, PICS, CompuPhys, Advanced Mathematics

### > Career Sectors:

Photonics, nano-technology, Time & Frequency Metrology, aeronautics, space industry, Industrial consulting, numerical analysis for industrial applications, big data analysis



## COMPUTER SCIENCE

Research aspects of network applications (web, distributed, mobile, the Internet of Things) and quality assurance (verification and validation) of systems

> 1 Master : IoT

### > Career Sectors:

Software development, web, network, embedded software in mechatronic system



## SMART SYSTEMS & STRUCTURES

Master Degrees in mechanics, electronics and control for applications in smart systems and Tomorrow's structures (vibro-acoustic, control, composites, microtechnology and embedded electronics...)

> 5 Masters: GREEM, SMART MECHANICS, SIS, VIBOT MAIA

### > Career Sectors:

Aeronautics and space industry, ground transportation, energy, luxury watches, micro-technology, Time & Frequency instrumentation, robotics, control, classical manufacturing, R&D in automotive industry,



## ENERGY

Optimization and Integration of thermal, electrical and hydrogen-based systems in stationary and transportation applications for a sustainable development.

> 2 Masters : ELECTRICAL ENERGY, THERMAL ENERGY

### > Career Sectors:

Energy, Renewable Energies. Hydrogen Energy, Electrical Vehicles, Eco-systems



## MATERIAL SCIENCE

Chemistry of materials, interfacial electrochemistry, physical-chemistry, inorganic chemistry with a focus on complex materials (polymers, hybrid materials, ceramics...).

> 2 Masters : CDM, T2MC

### > Career Sectors:

Transportation (automotive, aeronautics), energy (production, transportation), glass industry, cement & concrete industry, pharmaceutical industry, petrochemicals, and agrochemicals.

## EIPHI curriculum

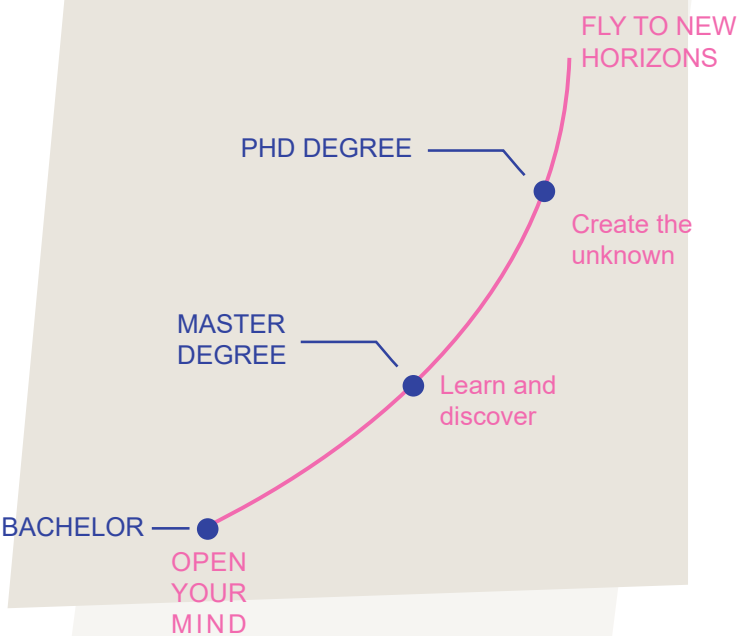
Each EIPHI degree is divided into lectures, practical training and projects activities with a strong majority taught in English. The master degrees propose both disciplinary and interdisciplinary courses as well as broad digital, societal, cultural, environmental, and entrepreneurial skills.

<b>Master</b>	Core sciences courses (including research project 1 day/week in the lab: 6 ECTS)	30
	Interdisciplinary courses	12
	Soft Skills (foreign languages, digital skills, transversal skills, entrepreneurial skills)	6
	Research Project	6
	Year 1 60 ECTS	Research internship or longtime project (full time in a lab during 4-8 weeks - international exchanges)
Year 2 60 ECTS	Specialization courses	18
	Soft Skills	6
	Advanced Research Project	6
<b>PhD</b>	Research Project	30
	Individual Training Program (transferrable soft skills, scientific/technical tools, specific graduate courses, industry courses, laboratory & technology courses, corresponds to 150h of class and/or activities)	15
	Networking (career events, International conferences, International mobility / secondment to a partner, outreach events, alumni association/Student Chapter)	
	Personal supervision activity (Tutor of a M.Sc. Student of UBFC)	



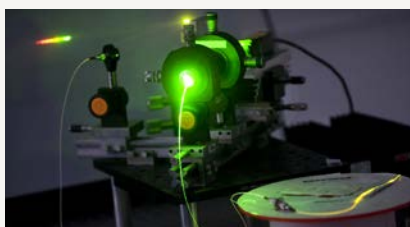
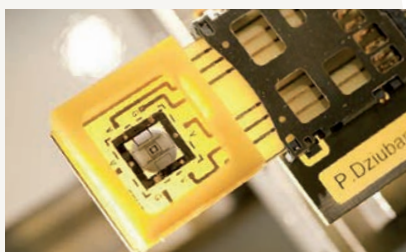
## ★★★ Top reasons to join EIPHI graduate school

- **Fellowships** for the best bachelor degree students and direct access to the PhD program for successful MSc students
- An **individual supervision** all along your curriculum, combining a personal project/thesis advisor and a mentor, to build a customized high-level training
- **Practical training** on high-tech platforms through internships and research projects in companies and labs supervised by high level scientists.
- **Openness** to cross and pluridisciplinary sciences (physics, chemistry, computer science, engineering, social science ...) a key ability for a successful career
- An inspiring international research environment and many **mobility** opportunities thanks to EIPHI's international network (European projects, several ERC grants...)
- Numerous **networking** opportunities through summer-schools, conferences, technological and industrial seminars



## Excellence in research with world-class research Laboratories

As an EIPHI graduate student, you will be involved in world class research with FEMTO-ST, ICB, IMB, ICMUB, UTINAM, IMVIA & LMB and their partners by contributing or initiating pluridisciplinary and innovative projects in close connection with industry. Guided by a personal supervisor, you will be regularly exposed to extensive hands-on-lab experience, get access to cutting-edge technology platforms and work in an international environment.



The EIPHI scientific program is mainly structured around 3 main topics:

### Monitoring & Prediction of complex systems

- Prognostic & Structural health monitoring/management
- Multifunctional sensors & (wireless) networks
- Photonic neuromorphic computing

### (Self)-adaptive architectures

- Active metamaterials & metamaterials
- Active micro-nano-mechatronics
- Programmable matter

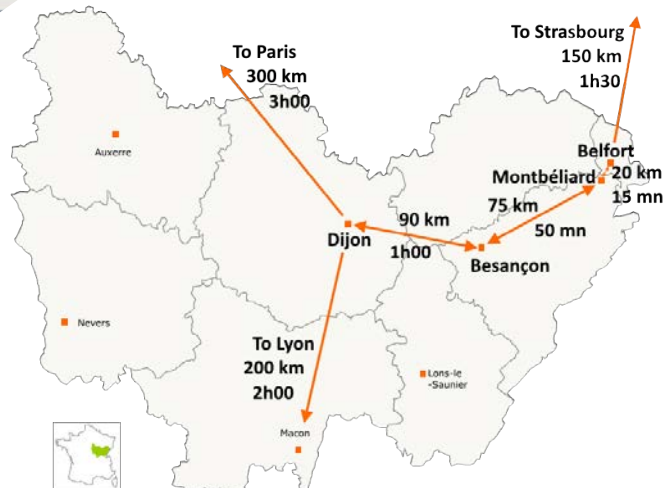
### Compact, active and agile information processing devices

- Integrated micro-nanophotonic and phononic components
- Smart nonlinear and quantum systems at micro-nano-scale
- Ultrafast control
- Time-frequency microdevices



## Life at EIPHI

Bourgogne Franche-Comté, land of Victor Hugo and Louis Pasteur, next to the Swiss and German borders, is a historical area of science, culture, gastronomy, and nature. A wealth of experiences is surrounding you with its unspoiled forests, Jura and Vosges mountains and the famous vineyard landscapes of Burgundy. Home of world heritage sites recognized by Unesco, the region also hosts celebrated hightech French industry centres such as the high-speed train TGV, car industry, and watchmaker precision manufacturing, jewelry, and medical devices industries. At the heart of an Eco-friendly territory, UBFC sites are hosted in human-sized cities where an active student life is proposed. As an international or national student, you will have access to the full French social security cover for 250€/year. The all included cost of living is between 600 to 800€/month.



## HOW TO APPLY?

The 5 EIPHI research axes are structured around 15 Masters taught in English, and 2 doctoral schools all of which are located in specific cities (Dijon, Besançon, Montbéliard and Belfort).

EIPHI welcomes applications from individuals holding a 3 or 4-year Bachelor Degree or equivalent undergraduate degree. All candidates are admitted as full-time student beginning in September.

Lifelong training is also available.

**Find out more about application forms and deadlines :**

<http://gradschool.eiphi.ubfc.fr>

**Contact :**

[gradschool.eiphi@ubfc.fr](mailto:gradschool.eiphi@ubfc.fr)

## CONTACT US

[gradschool.eiphi@ubfc.fr](mailto:gradschool.eiphi@ubfc.fr)  
<http://gradschool.eiphi.univ-bfc.fr>

Please feel free to get in touch with us, no matter the nature of your inquiry:

- Admissions, tuition fees and scholarships
- Applications and progression
- Thesis examinations
- Accommodation, insurance...
- Specific assistance to international students for housing, visa application, enrolment and Social Security

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