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## PARISTECH — CSC PHD PROGRAM

- November 9, 2021 -



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## 4. Labs and PhD proposals

### AgroParisTech

Institute of ecology and environmental sciences of Paris (IEES)

### Arts et Métiers Sciences et Technologies

Laboratoire d'Electrotechnique et d'Electronique de Puissance (L2EP)

Laboratoire Bourguignon des Matériaux et Procédés (LABOMAP)

Laboratoire angevin de mécanique, procédés et innovation (LAMPA)

Laboratoire d'Ingénierie des Systèmes Physiques et Numériques (LISPEN)

Laboratoire de mécanique des fluides de Lille (LMFL)

Laboratoire de Conception Fabrication Commande (LCFC)

Laboratoire conception de produits et innovation (LCPI)

Laboratoire Microstructures Mécanique Matériaux (LEM3)

Laboratoire Ingénierie des Fluides Systèmes Energétiques (LIFSE)

Mechanics, Surfaces and Materials Processing (MSMP)

Institute of Mechanics and Mechanical Engineering (I2M)

Laboratoire Procédés et ingénierie en mécanique et matériaux (PIMM)

### Chimie ParisTech - PSL

I-CleHS laboratory- SEISAD TEAM

IRCP - Institut de Recherche de Chimie de Paris

### Ecole des Ponts ParisTech

Hydrology Meteorology and Complexity Laboratory (HM&Co)

Navier Laboratory

### ESPCI Paris – PSL

Chimie Moléculaire, Macromoléculaire, et Matériaux (C3M)

Chimie, Biologie et Innovation (CBI)

GULLIVER

Institut Langevin

Laboratoire de Physique et d'Etude des Matériaux (LPEM)

Physique et mécanique des Milieux Hétérogènes

Plasticité du cerveau

Sciences et ingénierie de la matière molle (SIMM)

### Institut d'Optique Graduate School

Laboratoire Charles Fabry

Laboratoire Photonique, numérique et nanosciences (LP2N)

### MINES ParisTech – PSL

GEOSCIENCES - Centre de Géosciences

CEMEF - Centre de mise en forme des matériaux

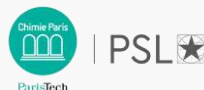
# WEBINAR GUESTS



AgroParisTech – Pierre Larraufie, Deputy head of ABIES Doctoral School and AgroParisTech Doctoral Studies  
 AgroParisTech – Institute of ecology and environmental sciences of Paris (IEES): Emmanuelle Jacquin-Joly



Arts et Métiers Sciences et Technologies – Ali Siadat, scientific advisor for China at Arts et Métiers  
 Arts et Métiers Sciences et Technologies – LCFC: Tudor Balan  
 Arts et Métiers Sciences et Technologies – LISPEN Lab: : Nathalie Klement, Olivier Thomas, Simon Benacchio  
 Arts et Métiers Sciences et Technologies – Laboratoire de Mécanique des Fluides de Lille: Francesco Romano  
 Arts et Métiers Sciences et Technologies – LEM3: Sophie Berveiller, Mohamed Jebahi  
 Arts et Métiers Sciences et Technologies – MSMP: Mourad Elhadrouz, Jean-Patrick Goulmy, Dorian Depriester  
 Arts et Métiers Sciences et Technologies – LIFSE: Mathieu Specklin, Samir Garbaya, Sofian Khelladi  
 Arts et Métiers Sciences et Technologies – L2EP : Nguc Ky Nguyen  
 Arts et Métiers Sciences et Technologies – I2M : Anita Catapano, Azita Ahmadi-Senichault, Antonio Rodriguez de Castro, Abdelaziz Omari



Chimie ParisTech – PSL – Ilaria Ciofini, VP Research  
 Chimie ParisTech – PSL – IRCP: Jolanta Swiatowska, Vincent Semetey



Ecole des Ponts ParisTech – Emmanuel Girard, Research deputy director  
 Ecole des Ponts ParisTech – Jean-Michel Pereira, Navier deputy director  
 Ecole des Ponts ParisTech – Philippe Coussot, Research director at Navier  
 Ecole des Ponts ParisTech – Auguste Gires, associate professor, HMCO



ESPCI Paris – PSL – Costantino Creton, VP Research  
 ESPCI Paris – PSL – C3M: Benjamin Laroche  
 ESPCI Paris – PSL – CBI: Corentin Tregouet  
 ESPCI Paris – PSL – SIMM: Jean Comtet  
 ESPCI Paris – PSL – Institut Langevin : Xiaoping Jia



MINES ParisTech – PSL – Julien Haccoun, deputy head of research, in charge of academic partnerships  
 MINES ParisTech – PSL – GEOSCIENCES - Centre de Géosciences : Emad Jahangir



Institut d'Optique Graduate School – Denis Boiron, Deputy head of Doctoral School Waves and Matter (EDOM)  
 Institut d'Optique Graduate School – LP2N : Philippe Lalanne, Adele Hilico



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## 1. PARISTECH INTRODUCTION

# PARISTECH SCHOOLS

7

« Grandes Écoles »  
In Engineering & Science

-  Paris-Saclay University
-  PSL University
-  HESAM
-  Paris-Est Sup



# KEY NUMBERS



12 000  
students



1 500  
PhD candidates



68 international  
agreements



56 teaching and  
research chairs



1 500  
professors



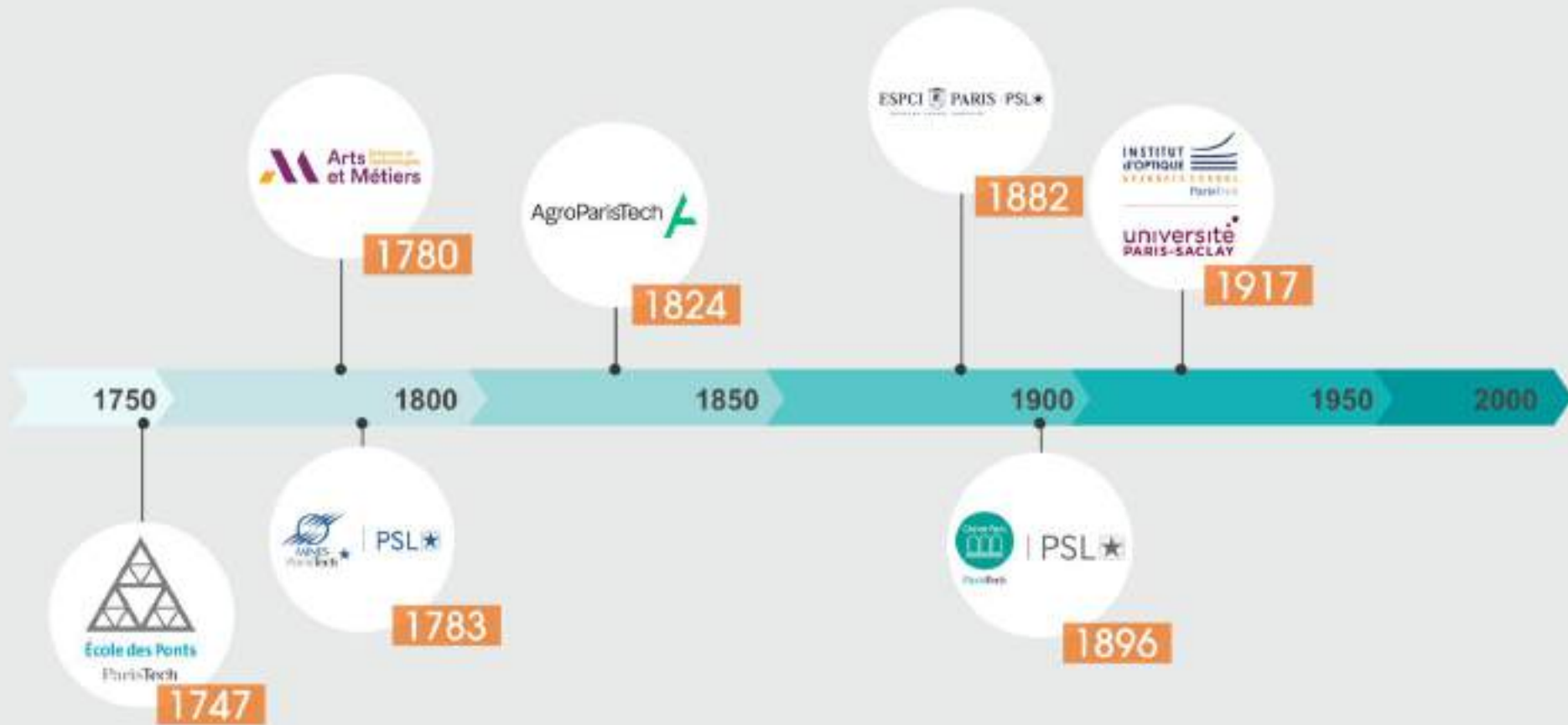
120  
partner companies



90 000  
alumni



# HISTORY





# LEAVING A MARK IN HISTORY...



Alineko, CC BY-SA 1.0 via Wikimedia Commons

**Émile Prisse d'Avesnes** (1807-1871),  
archaeologist and  
journalist, contributed to  
deciphering Egyptian  
hieroglyphs  
Arts et Métiers



**Maurice Lemoigne** (1883-1952) agricultural engineer and  
biologist who is credited with  
the discovery of  
polyhydroxyalcanoates  
AgroParisTech



**Félix Trombe** (1906-1985)  
chemist, physicist and  
speleologist, he is one of  
the pioneers of solar  
energy  
Chimie ParisTech - PSL



**Fulgence Bienvenüe**  
(1852-1936), chief  
engineer for metro in  
Paris  
Ecole des Ponts  
ParisTech



**Paul Langevin** (1872-1946)  
Physicist, inventor of the sonar  
ESPCI Paris - PSL



**Bernard Maitenaz** (1926-) engineer,  
optician, inventor of progressive lenses  
for vision correction  
Institut d'optique Graduate School

$$(1) \quad \frac{df}{dt}[x(t), y(t)] \\ = \frac{dx}{dt}(t) \cdot \frac{\partial f}{\partial x}[x(t), y(t)] + \frac{dy}{dt}(t) \cdot \frac{\partial f}{\partial y}[x(t), y(t)],$$

**Jules-Henri Poincaré** (1854-1912)  
Mathematician, physicist, completed  
major work on infinitesimal calculus  
MINES ParisTech - PSL

# PERMAMENT CONNECTIONS WITH COMPANIES



# PARISTECH ALUMNI - KEY PLAYERS OF THE ECONOMIC WORLD



**Philippe Knoche**

MINES  
ParisTech - PSL



**Antoine Frérot**

École des Ponts  
ParisTech



**Henri Poupart-Lafarge**

École des Ponts  
ParisTech



**Christel Heydemann**

École des Ponts  
ParisTech



**Béatrice Foucher**

AgroParisTech



**Eric Carreel**

ESPCI Paris - PSL



**Nicolas Brusson**

Institut d'Optique  
Graduate School



**Patrice Caine**

MINES  
ParisTech - PSL



**Xavier Huillard**

École des Ponts  
ParisTech



**Benoît de Ruffray**

École des Ponts  
ParisTech



**Jean-Marc Chéry**

Arts et Métiers



**Jacques Aschenbroich**

MINES  
ParisTech - PSL



**Marion Dewagenaere**

École des Ponts  
ParisTech



**Jean-Laurent Bonnafé**

MINES  
ParisTech - PSL



**Anne Rigail**

MINES  
ParisTech - PSL



**Mostafa Terrab**

École des Ponts  
ParisTech



**Laurence Piketty**

Chimie  
ParisTech - PSL



**Jean-Philippe Puig**

Chimie ParisTech -  
PSL



**Eric Niedziela**

Arts et Métiers

# START-UPS, EXAMPLES



Canopy solutions to cover the city's landscape with a modular, reversible, natural and light-weight vegetation mesh



Ultra-light (4kg) Titanium Seats for Aircrafts



Breeding and processing insects to contribute to the major challenges of our time: feeding the world's population, preserving resources and biodiversity, and fighting global warming



Zinc-Air batteries to replace lead batteries, but also the famous lithium batteries. They are inexpensive and safe, because they work in water. Aza Battery is developing new systems by improving all components (bi-functional air electrodes, separating membrane and zinc electrode)



Ultrasound medical imaging

An innovative medical technology company primarily focused on improving women's health and well-being through early detection and treatment

# WHY CHOOSE FRANCE?





# EXCELLENCE IN S&T AND ECONOMICS



## **6<sup>th</sup> economic power in the world**

- **International company leaders** in their sector (materials, building, cosmetics, energy, transport...)
- Paris area: a dynamic region (a lot of companies, high employability rate, numerous R&D centers)

## **Excellence of the Higher Education system**

- 5<sup>th</sup> destination in the world for international students
- Scholarships and support for international mobility
- A lot of international academic partners
- Tuition fees lower than most of the Western countries

## **A S&T leader worldwide**

- The country of mathematicians (Viète, Laplace, Cauchy, Poincaré, Louis Bachelier...)
- Excellence in a lot of domains, e.g. chemistry, civil engineering, physics (Marie & Pierre Curie, Ampère, Laplace, Freyssinet, Coriolis, Fourier...)
- Nobel prizes and Fields medals
- World famous research organisations (CNRS, INRAE, INSERM, CEA...)

# A COUNTRY OF CULTURE



## Tradition / Art & History / Quality of Life

- Arts (museums, movies, literature, philosophy...)
- Romanticism, impressionism, surrealism...
- Food

## Values

- Freedom, equality, brotherhood
- Inclusion
- Cosmopolitanism
- Critical thinking, strong attachment to sciences and innovation

## A key role in ecological transition and climate change

## French language

- Official language of more than 300 million people (5<sup>th</sup> in the world)
- 5<sup>th</sup> most important language for business in the world after English and Mandarin Chinese

## What international students are saying

- 9 out of 10 international students recommend France as first study destination
- 93 % believe that studying in France has been a self-enrichment
- 86 % believe that studying in France have highlighted their university curriculum





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## 2. PARISTECH – CSC PHD PROGRAM



# APPLICANT'S PROFILE



# PREREQUISITES

Find all relevant information on:



Applicants must be citizens of the People's Republic of China at the time of application.

Applicants should not hold a foreign permanent residence permit.  
Applicants should be at least 18 years old at the time of application.

## STUDYING IN CHINA

- At final year of Master degree
- In the 1st PhD year, recommended by your home university (for co-supervised PhD)

## STUDYING IN FRANCE (OR IN ONE OF THE 41 PARTNER COUNTRIES OF THE CSC)

- Second/Last year Master's (M2) students or students graduated within less than a year at the time of application for the CSC scholarship.
- *Applicants who have studied for a “Diplôme d'ingénieur” in France, and especially those who have received funding from the [CSC - ParisTech "9+9" Program](#) project are also encouraged to apply to this PhD program.*

## WORKING

You are **a master holder** and you work in a company that agrees with your PhD project

# PREREQUISITES: EXCELLENCE, FOR A HIGHLY-SELECTIVE COMPETITION

- You have **excellent academic records, especially in the relevant discipline.**
- You should have **good command of written and spoken English.**
- **You should have a coherent personal and professional plan.**
- You are willing to learn minimal French for basic communication.



## Tips

- *Learn as much as you can about the labs, the PhD advisors, their past and present work.*
- *Carefully select PhD proposals that are relevant with your personal profile.*
- *Then build a coherent, clear professional plan around the information you gather.*

# THE CSC SCHOLARSHIP – FUNDING SCHEME

- 1350€ / month (for the duration specified on your admission letter, starting when you arrive in France) + one-time round-trip international travel expenses by the most economical route
- Duration :
  - 36-48 months for full PhD
  - 6-24 months for co-supervised PhD
- You are committed to go back to China at the end of your PhD (exceptions to be found on the CSC website).

# CALENDAR & STEPS



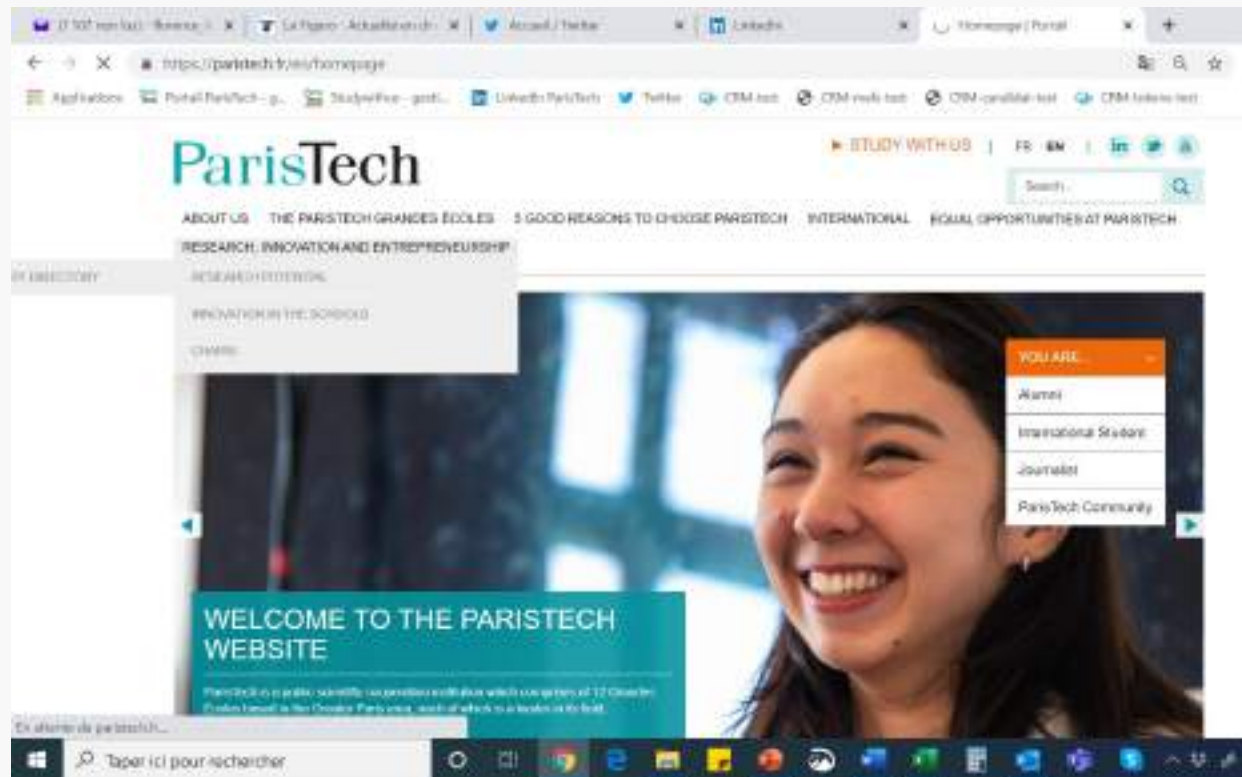


# WHERE TO FIND RELEVANT INFORMATION?

## PARISTECH WEBSITES

<https://www.paristech.fr/en/homepage>

To learn more about the ParisTech – CSC PhD program, about the ParisTech labs, etc.



ABOUT US THE PARISTECH GRANDES ÉCOLES 5 GOOD REASONS TO CHOOSE PARISTECH INTERNATIONAL EQUAL OPPORTUNITIES AT PARISTECH

Research, Innovation and Entrepreneurship > Research potential > Laboratory Directory

### LABORATORY DIRECTORY

This directory lists the laboratories, described by ParisTech Grandes Écoles, with a link to each school's website. The directory also lists the name of the laboratory's Director.

Note: This directory is built based on information from the Grandes Écoles' websites. The terminology can vary from one Grande École to another. Thus one can talk of mixed research unit (partners) or laboratories. Some Grandes Écoles federate their laboratories as part of a department. They are listed individually in the directory.

CHOOSE A RESEARCH DOMAIN :

All



LABORATORY AGROPARISTECH



LABORATORY ARTS ET MÉTIERS



# 2021-2022 CAMPAIGN

**7** SCHOOLS

**110** PHD PROPOSALS

**12** FIELDS OF ENGINEERING *in*

LABS LOCATED IN **+20** CITIES IN FRANCE

You can check them on the excel table, or download them all here:

<https://www.paristech.fr/en/international/china/paristech-csc/how-apply>



# WHERE TO GET RELEVANT INFORMATION?

## PARISTECH SOCIAL MEDIA ACCOUNTS

*For videos, information on research and innovation in ParisTech schools...*

ACCOUNTS  
GLOBALES

[LinkedIn](#)



[Twitter](#)



[Facebook](#)



[YouTube](#)



ACCOUNTS  
CHINESES

[LinkedIn](#)



Wechat



[Twitter](#)



Weibo



Bilibili



# INTERNATIONAL ADMISSION PROCESS

**18 October 2021: Publication of the PhD proposals**

**October 18, 2021 – December 12, 2021 (23.59 Paris Time) : Application**

**December 24, 2021: Invitation to the interview**

**January 10 – 21, 2022: Interview with ParisTech**

**Late January – February 2022: Interview with the PhD supervisor(s)**

**Conditional Admission letter**

**March 2022: CSC scholarship application**

# APPLICATION

**Step 1- Publication of the PhD proposals on [ParisTech website](#) on October 18, 2021**

**Step 2- Online application from October 18 to December 12 (23:59 Paris Time), 2021**

## DOCUMENTS TO BE UPLOADED (\*ARE MANDATORY)

|                                                                                |                                                                                                                                                          |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 recommendation forms*                                                        | Student ranking certificates (at bachelor and master level)*                                                                                             |
| Academic transcripts (at bachelor and master level)*                           | English certificate (IELTS, TOEFL, CET-6/4, etc.)*                                                                                                       |
| A personal statement including motivation and rough research plan (1-2 pages)* | A scan of your passport or resident ID card*                                                                                                             |
| An ID photo*                                                                   | An English summary of your master thesis                                                                                                                 |
| French certificate                                                             | Any further document proving your academic or scientific achievement / excellence (ex. university prize, published work, previously awarded scholarship) |

**Step 4- Selection based on the application files and if selected, invitation to an interview (December 24, 2021)**

**Step 5- Online interviews from January 10 to 21, 2022**

**Step 6- Interview with the potential PhD supervisor(s) from end of January to end of February 2022**

**Step 7- Conditional admission letter provided to the selected applicants by the PhD supervisors (conditions: obtention of master degree and CSC scholarship) (before March 2022)**

**Step 8- Application for the CSC scholarship by the student (March 2022)**

**Step 9- Results of the CSC process (May-June 2022)**

*ParisTech China will ensure a follow-up process of the CSC scholars til the arrival in France, in relation with the ParisTech schools.*

# HOW WILL YOUR APPLICATION BE EVALUATED?

## **In your application file**

- **The file you submit should be complete**
- Excellence of academic transcripts
- Ranking: personal ranking and ranking of your university at national and international level
- Referrals

## **During the interview**

- Your capacity to communicate in English, and even in French if you are able to
- Your capacity to present and explain clearly your personal and professional project

## **During the interview with the potential PhD supervisor**

- The relevance of your profile with the lab's requirements and the thesis
- Your scientific level in relevant fields

# TUITION FEES

***The doctoral training program total cost in France is between 100k & 150k Euros per year.***

***PhD candidates are only asked for tuition fees:***

Admitted students may benefit from a partial or full tuition fee waiver for the duration of their studies at their host ParisTech Grande École.

| ParisTech Schools                        | Tuition fees                  |
|------------------------------------------|-------------------------------|
| AgroParisTech                            | 380€ + 92€ CVEC*<br>each year |
| Arts et Métiers Sciences et Technologies |                               |
| Chimie ParisTech - PSL                   |                               |
| Ecole des Ponts ParisTech                |                               |
| ESPCI Paris - PSL                        |                               |
| Institut d'Optique Graduate School       |                               |
| MINES ParisTech - PSL                    |                               |



# RESULTS

By the end of May 2022 – June 2022, the CSC will announce the list of successful candidates.

*Each year, over 100 candidates apply to this program, half get a proposal from a ParisTech school lab.  
In 2020, 33 scholarships were granted by the CSC.*

Successful applicants will then receive their official admission letters, and be informed by the CSC about all the administrative procedures to follow before departure for France.

Once all administrative procedures over, and their visas obtained, PhD candidates will be expected to arrive in France in September – October 2022.

# STUDYING AT PARISTECH

## INTERNATIONAL STUDENTS SERVICES

- Accommodations
  - Help to find accommodation
  - Possibility of accommodation allowance
  - Average living costs in Paris: ~ 800 € /month
- Assistance with visa procedure





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## 3. RESEARCH IN PARISTECH'S SCHOOLS

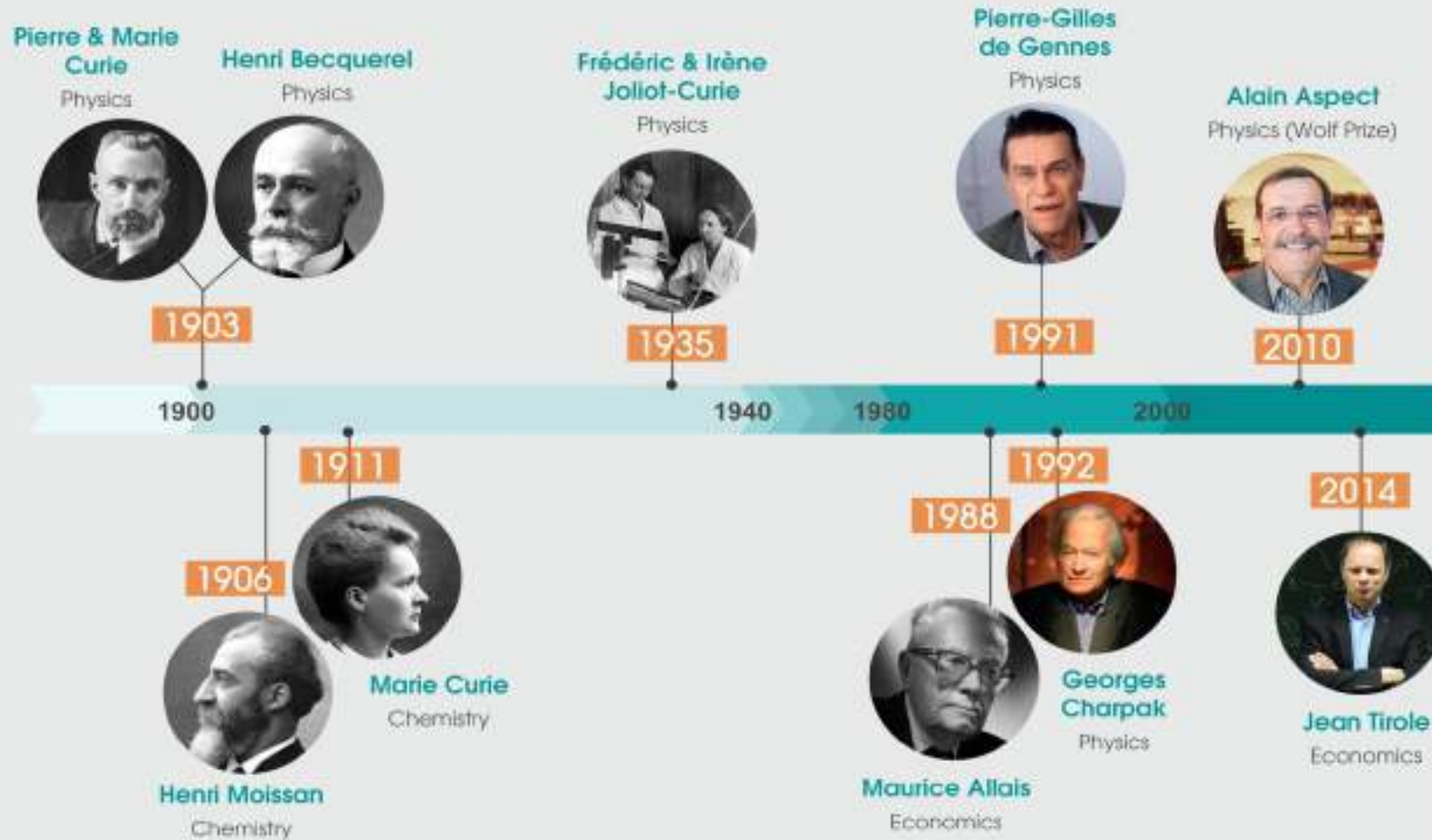


# EXCELLENCE IN RESEARCH



# A LONG TRADITION OF SCIENTIFIC EXCELLENCE

## NOBEL PRIZES





# RANKINGS



From 2020, in the international rankings

AgroParisTech



université  
PARIS-SACLAY



ESPCI PARIS PSL



PSL  
UNIVERSITÉ PARIS

Arts et Métiers



are ranked on their own

ParisTech  
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## Shanghai Ranking (ARWU) 2021

University Paris-Saclay: **13<sup>th</sup>** (1st ) University PSL: **38<sup>th</sup>** (2<sup>nd</sup> )

## THE 2022

PSL: **40<sup>th</sup>**

University UPSaclay: **117<sup>th</sup>**

Ecole des Ponts

ParisTech: 251–300

## QS 2022

PSL: **44<sup>th</sup>**

University UPSaclay: **86<sup>th</sup>**

Ecole des Ponts ParisTech: 245<sup>th</sup>

## Shanghai Ranking (ARWU) 2021 – by subject

### Mathematics

#1 UPSaclay

#13 PSL

### Agricultural Sc.

#12 UPSaclay

### Physics

#9 UPSaclay

#10 PSL

### Biotechnology

#30 UPSaclay

#51-75 PSL

### Economics

#51-75 PSL

#101-150 UPSaclay

#301-400 Ponts PT

### Mechanical Eng.

#51-75 PSL

#101-150 A&M S&T

# RANKINGS



From 2020, in the international rankings

AgroParisTech



université  
PARIS-SACLAY



ESPCI PARIS PSL



PSL  
UNIVERSITÉ PARIS

Arts et Métiers



are ranked on their own

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QS 2022

PSL: **44<sup>th</sup>**

University UPSaclay: **86<sup>th</sup>**

Ecole des Ponts ParisTech: 245<sup>th</sup>

Shanghai Ranking (ARWU) 2021 – by subject

**Physics**

#9 UPSaclay

#10 PSL

**Mathematics**

#1 UPSaclay

#13 PSL

**Chemistry**

#49 UPSaclay

#101-150 PSL

**Earth sciences**

# 50 PSL

#51-75 UPSaclay

#201-300 Ecole des Ponts PT

**Atmospheric science**

#76-100 Ecole des Ponts PT

**Chemical Eng.**

#201-300 PSL

#301-400 UPSaclay

**Civil Eng.**

#201-300 Ecole des Ponts PT

**Environmental Sc. & Eng.**

#151-200 UPSaclay

#301-400 Ecole des Ponts PT

**Ecology**

#8 PSL

#101-500 UPSaclay

**Materials Sc. & Eng.**

#101-150 PSL

**Nanoscience & Nanotechnology**

#101-150 UPSaclay

#151-200 PSL

**Energy Sc & Eng**

#201-300 PSL

**Mechanical Eng.**

#51-75 PSL

#101-150 A&M S&T

**Electrical and Electronic eng.**

# 51-75 UPSaclay

**Water resources**

#101-150 UPSaclay

#151-200 PSL

**Automation & Control**

#151-200 A&M S&T

#101-150 PSL

**Metallurgical Eng.**

#39 PSL

#101-150 A&M S&T

**Medical Technology**

#101-150 PSL

**Food S&T**

#76-100 UPSaclay

**Biotechnology**

#30 UPSaclay

# 51-75 PSL

**Remote sensing**

#76-100 UPSaclay

**Economics**

#51-75 PSL

#101-150 UPSaclay

#301-400 PSL

**Agricultural Sc.**

#12 UPSaclay

**Biological sciences**

#76-100 UPSaclay

#101-150 PSL

**Human Biological Sciences**

#76-100 UPSaclay

**Veterinary Sciences**

#76-100 UPSaclay



# PARTNER NATIONAL RESEARCH INSTITUTES



IFSTTAR



ParisTech

*Inria*



INRAE



Inserm

# Q&A



## Q&A 1/2

Q : Would there be a required delay of going to France due to the pandemic?

A : *All Chinese students and PhD candidates are allowed to come in France.*

Q : do we have to find the house to rent several months earlier online?

A : *you have time to search an accommodation . It could be started in May or during the summer. The scholarship is sufficient to live in France*

Q : Is it possible to have some economic supports from supervisor in case 1350 euros isn't enough ?

A : *It is not available in all labs. Some laboratories will provide additional funding. Once you have selected a research subject this is something to ask to your potential advisor.*

Q : I am a third-year PhD student, can I apply this program for co-supervised?

A : *You have to discuss it with the PhD supervisor and the lab you are interested in*

Q : I graduated on 2020, could I apply for it.

A : Yes

Q : Can other proposals that are not in the list but discussed with professors of ParisTech schools be accepted in this program or CSC? Can other proposals that are not in the list but discussed with professors of ParisTech school be accepted in this program or CSC?

A : *Yes,they can. You have to discuss with the advisors. It is possible to join the program with other proposals arranged with a ParisTech professor*

## Q&A 2/2

Q : Is there only one quota for a Phd proposal?

A : *Everyone can apply for each topic, but the PhD supervisor will deliver only one admission letter for one candidate for each topic*

Q : I can not have a ranking, can I just show my academic records instead of the ranking?

A : *You need to give your records and you upload a file where you explain why you don't have any ranking*

Q : If I apply this ParisTech program, can I apply at the same time CSC individually for another institute not including in 7 ParisTech's schools?

A : *No, for the CSC march session you can only apply for one scholarship. You can perhaps try for another CSC session.*

Q : I was wondering what's the difference between this program and regular CSC application?

A : *This program is a partnership with CSC. If your application is submitted to CSC in the frame of this program, you have more chance to get a scholarship than as an individual applicant*

Q : May I ask for question about recommendation when we apply? Is it from the present PhD supervisor?

A : *You can choose the 2 recommendations you want. But if you are still a PhD student applying for cosupervision, it would be great to have a recommendation from your PhD supervisor in China*

# RESEARCH DOMAINS



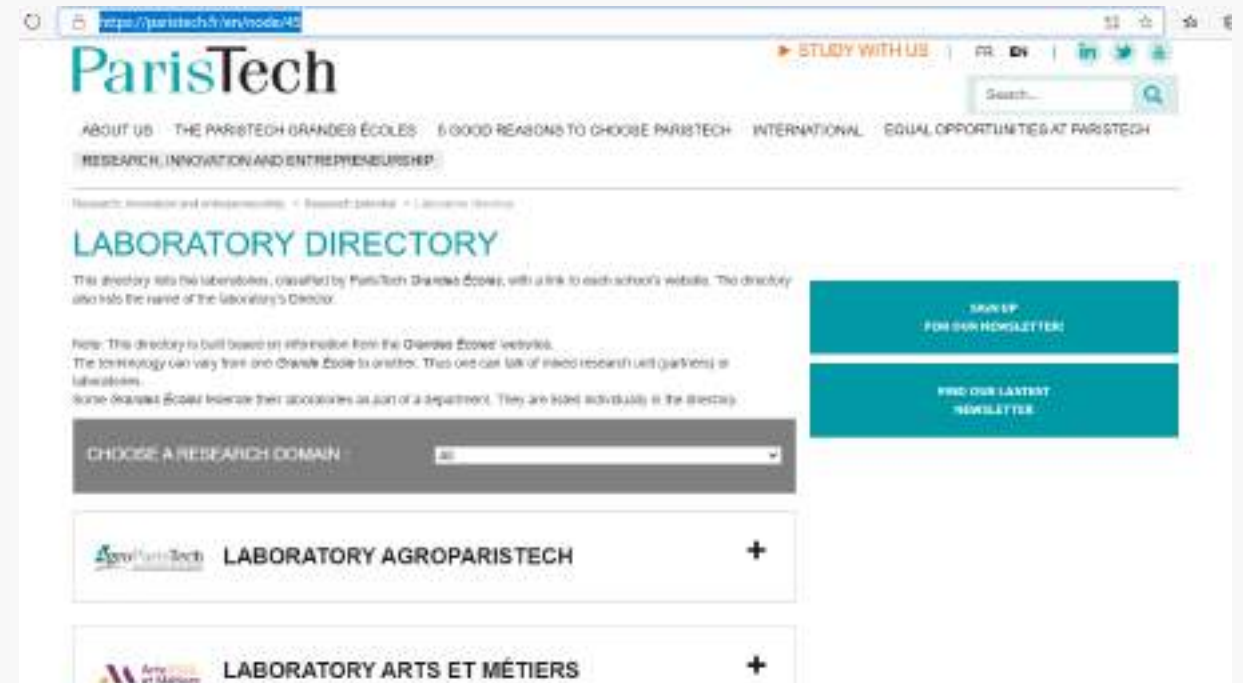
# RESEARCH DOMAINS

- Chemistry, physico-chemistry, mechanical engineering
- Design, industrialization
- Economics, management and social sciences
- Energy, process
- Environmental S&T, sustainable development, geosciences
- Information and communication S&T
- Life and health S&T
- Life science and engineering for agriculture, food and environment
- Mathematics and applications
- Material sciences, mechanics and fluids
- Physics, optics
- Urban planning, transport



# PARISTECH SCHOOLS' LABS

Learn more about [the labs](#) in each school:



# CHEMISTRY, PHYSICO-CHEMISTRY, MECHANICAL ENGINEERING

## AGROPARISTECH

SayFood (Paris-Saclay Food and Bioproduct Engineering)

ÉcoSys

## CHIMIE PARISTECH - PSL



## ESPCI PARIS - PSL



### Institute of Porous Materials (IMAP)

Sciences et Ingénierie de la Matière Molle



Chimie Moléculaire,  
Macromoléculaire,  
Matériaux

Physique et Mécanique  
des Milieux Hétérogènes  
UMR 7636



## ARTS ET MÉTIERS



## ECOLE DES PONTS PARISTECH



\* Environmental chemistry

# DESIGN, INDUSTRIALIZATION

## ARTS ET MÉTIERS



# ECONOMICS, MANAGEMENT AND SOCIAL SCIENCES

## AGROPARISTECH

Sciences pour l'action et le développement -  
Activités, produits, territoires (SAD-APT)

Laboratoire d'économie forestière

Economie publique (ECOPUB)



## ECOLE DES PONTS PARISTECH

Paris Jourdan Sciences économiques (PjSE)



LATTS

LABORATOIRE TECHNIQUES  
TERRITOIRES ET SOCIÉTÉS

## MINES PARISTECH – PSL

Centre for industrial economics (CERNA)

CENTRE DE RECHERCHE  
SUR LES RISQUES  
ET LES CRISES



# ENERGY, PROCESS

## AGROPARISTECH

SayFood (Paris-Saclay Food and Bioproduct Engineering)

## ESPCI PARIS



## CHIMIE PARISTECH - PSL



## ARTS ET MÉTIERS



## MINES PARISTECH - PSL

Centre efficacité énergétique des systèmes (CES)

Centre of Thermodynamics of Processes (CTP)

Centre Observation, Impacts, Energy (OIE)

Centre for processes, renewable energies and energy systems (PERSEE)



# ENVIRONMENTAL S&T, SUSTAINABLE DEVELOPMENT, GEOSCIENCES

## AGROPARISTECH

### Agronomy

Sciences pour l'action et le développement – Activités, produits, territoires (SAD-APT)



UMR Silva

## ESPCI PARIS – PSL

Physique et Mécanique  
des Milieux Hétérogènes  
UMR 7636



## ARTS ET MÉTIERS



Ingénierie des Fluides  
Systèmes Énergétiques



INSTITUT DE  
MÉCANIQUE  
ET D'INGÉNIERIE



## ECOLE DES PONTS PARISTECH



## MINES PARISTECH - PSL

Centre de Géosciences  
(GEOSCIENCES)



PSL





# INFORMATION AND COMMUNICATION S&T

## ARTS ET MÉTIERS



## MINES PARISTECH – PSL

Centre for Mathematical Morphology (CMM)

Centre de recherche en informatique (CRI)



## INSTITUT D'OPTIQUE



## ECOLE DES PONTS PARISTECH





# LIFE AND HEALTH S&T

## AGROPARISTECH

**SayFood (Paris-Saclay Food and Bioproduct Engineering)**



Laboratoire de Physiologie de la Nutrition et du Comportement Alimentaire



## MINES PARISTECH – PSL



## CHIMIE PARISTECH - PSL



## ARTS ET MÉTIERS



## ESPCI PARIS – PSL



Plasticité du Cerveau



INVENT THE FUTURE OF MEDICAL TECHNOLOGIES

## ECOLE DES PONTS PARISTECH



\* Microbiology, Ecotoxicology

# LIFE SCIENCE AND ENGINEERING FOR AGRICULTURE, FOOD AND ENVIRONMENT

## AGROPARISTECH

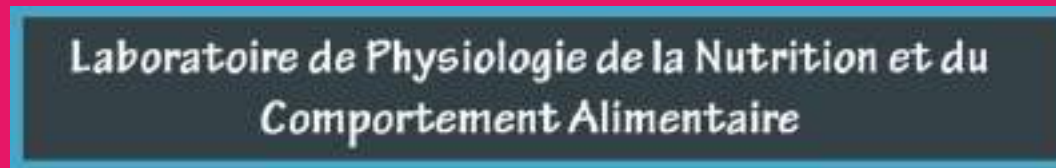
### Agronomy

Sciences pour l'action et le développement - Activités, produits, territoires (SAD-APT)

SayFood (Paris-Saclay Food and Bioproduct Engineering)

Laboratoire d'économie forestière

Economie publique (ECOPUB)



## ECOLE DES PONTS PARISTECH



\*

\* Microbiology, ecotoxicology, hydrobiology, soil science



# MATERIAL SCIENCES, MECHANICS AND FLUIDS

## ARTS ET MÉTIERS



## ECOLE DES PONTS PARISTECH



## CHIMIE PARISTECH – PSL



## MINES PARISTECH – PSL



## ESPCI PARIS – PSL



Physique et Mécanique  
des Milieux Hétérogènes  
UMR 7636



Institute of Porous Materials (IMAP)

# MATHEMATICS AND APPLICATIONS

**AGROPARISTECH**



**MINES PARISTECH – PSL**

**Centre Automatique et systèmes (CAS)**

**Centre for Mathematical Morphology (CMM)**



**CBIO – Centre for Computational Biology**



**ESPCI PARIS – PSL**



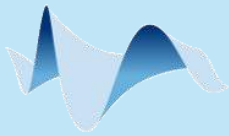
**ECOLE DES PONTS PARISTECH**

**Centre d'enseignement et de recherche en  
Mathématiques et calcul scientifique (CERMICS)**



# PHYSICS, OPTICS

## ESPCI PARIS – PSL



Institut **Langevin**  
ONDES ET IMAGES



Physique et Mécanique  
des Milieux Hétérogènes  
UMR 7636



## INSTITUT D'OPTIQUE



LABORATOIRE  
**CHARLES  
FABRY**



LABORATOIRE  
**HUBERT CURIE**  
UMR • CNRS • S516 • SAINT-ETIENNE



Laboratoire Photonique  
Numérique & Nanosciences

# URBAN PLANNING, TRANSPORT

## ECOLE DES PONTS PARISTECH



**LATTS**

**LABORATOIRE TECHNIQUES  
TERRITOIRES ET SOCIÉTÉS**





# RESEARCH AT AGROPARISTECH



PIERRE LARRAUFIE



# PARISTECH – CSC PHD PROGRAM

AgroParisTech  
Talents for a sustainable planet



**2** PhD proposals   **1** Fields of research   **2** Research units



Research domains at AgroParisTech for this ParisTech – CSC program:

## Agricultural Production and Forestry

**Biotechnologies, green chemistry and process engineering** : ABI  
**Forest, Trees and forest ecosystems**: SILVA, EcoFoG  
**Animal nutrition, behavior, modelling**: MoSAR  
**Risk management**: BIOGER  
**Insect Chemical Ecology**: IEES

## Food and non-Food Transformations

**Genetics**: GABI, GQE  
**Statistics and genomics**: MIA-Paris  
**Food microbiology**: MICALIS  
**Nutrition**: PNCA  
**Process engineering of agricultural, food and biological products**:  
SayFood (Paris-Saclay)

## Sustainable Management of Natural Resources and Environment

**Ecology**: ESE, Agronomy  
**Ecotoxicology**: EcoSys  
**Water** : G-EAU  
**Economics and public policies** : BETA, CIRED, Economie publique  
**Mathematics & ICT, modelling, remote sensing**: MIA-Paris, PRODIG, TETIS

## Human Health

**Food microbiology towards health**: MICALIS  
**Process engineering of agricultural, food and biological products**:  
SayFood (Paris-Saclay)

## RESEARCH INFRASTRUCTURES

## STAR RESEARCHERS AT AGROPARISTECH



Name



Name



CLAIRE CHENU, INRA LIFETIME  
ACHIEVEMENT AWARD 2019



HERVÉ THIS, CREATOR OF  
MOLECULAR GASTRONOMY



FLORENT ALLAIS, FELLOW OF THE  
ROYAL SOCIETY OF CHEMISTRY

## KEY FACTS / FIGURES



250 teacher-researchers and other researchers  
350 PhD candidates including 31 % of international PhD candidates



Prestigious partnerships with  
- Université Paris-Saclay ; Université de Reims Champagne-Ardenne ; Université de Lorraine, INRAE,...  
- WUR, University of Florida, Aarhus University, University of Berkeley,...



Number of publications : 300 per year



15 patents



PhD prizes and awards (Chancellerie de Paris, Agriculture Academy, oral communications, My thesis in 180s...)





# RESEARCH AT ARTS ET MÉTIERS INSTITUTE OF TECHNOLOGY

---

ALI SIADAT

# PARISTECH – CSC PHD PROGRAM



**51** PhD proposals

**7** Fields of research

**12** Labs





# ARTS ET MÉTIERS IN FIGURES

**11**



**SITES**

all around France dedicated to research and education

**220**



**PHD STUDENTS**

registered in our doctoral school focused on engineering

**1**



**BACHELOR  
IN TECHNOLOGY**

**6000**



**STUDENTS**

all programs combined

**15**



**LABORATORIES**

and research teams

**11**



**ENGINEERING  
PROGRAMS**

**1100**



**STAFF**

teaching, research, technical & administrative

**7 MILLION**



revenue in  
**CONTINUOUS EDUCATION**

**+20**



**MASTER OF SCIENCE**

**15 MILLION**



revenue generated by contracts with industry

**2000**



**STUDENTS**

in continuous education programs

**17**



**SPECIALISED  
MASTERS ©**

# ARTS ET MÉTIERS A UNIQUE NETWORK



**8 Campus  
dedicated to  
education and  
research**



**3 Institutes  
dedicated to  
research**

## Research domains at Arts et Métiers Institute of Technology:

### Mobility

DynFluid (Paris) - aerodynamics, aeroacoustics; transition, instability and control  
 Institut de recherche de l'Ecole navale (Brest) - maritime transport, hydrodynamics  
 LEM3 (Metz): materials sciences for transport, civil engineering, energy...

### Energy

L2EP (Lille) - electrical energy control, networks, power electronics  
 LAMPA (Angers, Laval) - advanced manufacturing processes, durability of materials and structures, VR, AR  
 LIFSE (Paris): renewable energy, sustainable mobility, aeronautics, space, processes, health

### Health tech

Institut de biomécanique humaine Georges Charpak (Paris) - neuro-musculoskeletal modeling, sport, disability

### Construction

I2M (Bordeaux) - solid mechanics, fluid mechanics, civil engineering, materials, processes, life cycle  
 LABOMAP (Cluny) - wood material and machining, materials and surface engineering  
 LMFL (Lille): fluid mechanics, mechanical reliability of materials and structures, civil engineering

### Manufacturing

LCFC (Metz) – design, manufacturing, control  
 LCPI (Paris, Chambéry) – prototyping by virtual reality, creativity, usage analysis, eco-design  
 LISPEN (Lille, Chalon, Aix-en-Provence): system engineering, modeling, Human-Machine Interaction  
 MSMP (Lille, Chalon, Aix-en-Provence): mechanics, surfaces and materials processing  
 PIMM (Paris): material mechanics, polymers, numerical simulation

## RESEARCH INFRASTRUCTURES



## KEY FACTS / FIGURES



380 teacher-researchers  
220 PhD candidates



532 publications in 2019 including  
187 international co-publications



17 patents

6 Research Chairs



Prestigious partnerships and with:



17 current EU H2020 projects including  
1 MSCA ITN (European Training Network) and 1 MSCA RISE  
1 CNRS silver medal





# RESEARCH AT CHIMIE PARISTECH - PSL



ILARIA CIOFINI



# PARISTECH – CSC PHD PROGRAM



**21** PhD proposals

**2** Fields of research

**2** Labs

I-CLeHS

**IR CP** | Institut  
de Recherche  
de Chimie Paris



## Research domains at Chimie ParisTech – PSL:

### I-CLeHS

→ The I-CLeHS laboratory, composed of 4 research teams, focuses on Chemistry for Health and Life Sciences with research spanning from theoretical and physical chemistry to organic and bio-inorganic chemistry

### IPVF

→ IPVF focuses on energy production (photovoltaics)

### IRCP

→ The 8 teams of the IRCP laboratory cover a wide variety of domains of chemistry going from material science to energy production and storage.

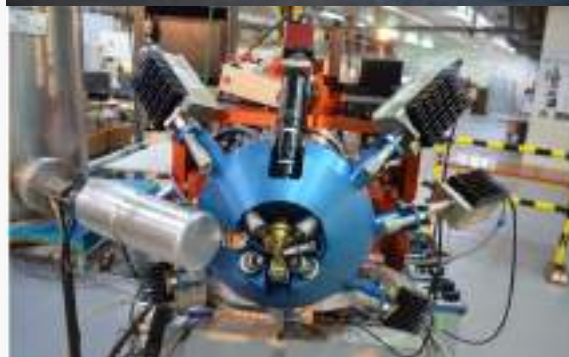
## RESEARCH INFRASTRUCTURES IN PARIS CITY CENTER



NMR/Mass/HPC facilities



Characterization (spectroscopy, microscopy)



New Aglae (Louvre)



Chemistry



Optics



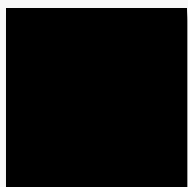
## KEY FACTS / FIGURES



140 researchers & teacher-researchers  
100 PhD candidates 50 % of international PhD candidates



300 publication a year



7 patents a year



Industrial Chairs  
Prestigious partnerships with academic laboratories & industrial partners  
Co-directed thesis with international partners (Italy, Mexico, South Africa...)



and many others...



5 ERC (1 Starting, 2 Consolidator, 2 Advanced)  
2 ITN (European Training Networks)  
1 IUF (Senior)  
Several international prizes ( France-Berkeley Funds Award, Swiss National Science Foundation .... )

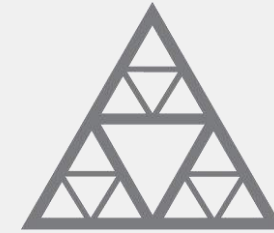


# RESEARCH AT ECOLE DES PONTS PARISTECH



EMMANUEL GIRARD

# PARISTECH – CSC PHD PROGRAM



École des Ponts  
ParisTech

**5** PhD proposals

**2** Fields of research

**2** Labs





# Research domains at Ecole des Ponts ParisTech



## Industry of the future

- NAVIER** – ecomaterials, digital manufacturing, innovative structures, geomechanics
- CERMICS** – modelisation of uncertainty, digital simulation, systems optimisation
- LIGM** – data processing, 3D vision, big data

## City and mobility systems

- LVMT** – sustainable mobility, territorial dynamics
- LEESU** – urban waters, alternative resources
- CEREA** – atmospheric environment, air quality, renewable energy

## Management of risks, resources and milieus

- HM&Co** – hydro-meteorological risks, resilient cities
- LMD** – physics of atmosphere, climate
- LHSV** – renewable energy, natural risks

## Economy, practices and society

- LATTS** – cities of future, infrastructures, policies
- PjSE** – public policies, environmental economy, markets and governance
- CIREN** – sustainable development, climate change

# RESEARCH INFRASTRUCTURES



X- band radar



Platform  
TARANIS



Blue-Green  
Wave



Multi-Hydro,  
RadX@HMo



EDF'lab Chatou

# RESEARCH AT ECOLE DES PONTS PARISTECH : KEY FACTS/FIGURES



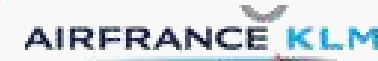
465 researchers / teacher-researchers  
540 PhD and post doctoral students including  
46 % of international doctoral students



51% of research sponsored by industry



968 international publications in 2020  
including 47% international co-publications



... and much more



10 M€ contracts with companies



3 ERC, a lot of PhD prizes, 1 For Women in  
science L'Oréal-UNESCO Young researcher  
etc.



# RESEARCH AT ESPCI PARIS - PSL



COSTANTINO CRETON



# PARISTECH – CSC PHD PROGRAM

ESPCI  PARIS | PSL 

**19** PhD proposals

**5** Fields of research

**8** Labs

CHIMIE  
BIOLOGIE  
CBI  
INNOVATION

UMR 7083  
Griver



Institut Langevin  
ONDES ET IMAGES

Physique et Mécanique  
des Milieux Hétérogènes  
UMR 7636



Research @ESPCI Paris

20播放 · 0弹幕 2020-10-30 17:58:29



Costantino CRETON

Vice-President of Research at ESPCI Paris - PSL

1人正在看 · 0条弹幕



A 发个友善的弹幕见还当下

弹幕礼仪 >

发送

Find the video on ParisTech China Bilibili account!





Research domains at ESPCI Paris – PSL:

Biology

- **Brain Plasticity Lab** – neurosciences + proteomics
- **Physics for Medicine** – wave physics for medicine

Chemistry

- **Chemistry of Molecules and Materials** – chemistry of molecules and materials
- **Soft Matter Science and Engineering, Institute of Porous Materials (IPM)** – Soft Matter, Materials Science & Complex Fluids
- **CBI** – microfluidics for physical chemistry and pharmaceuticals

Physics

- **Institut Langevin, Physics for Medicine** – wave physics and applications
- **Physics & Materials Lab** – solid state physics, nanosciences
- **PMMH** – hydrodynamics and solid mechanics
- **Gulliver** – Soft Matter Physics

## RESEARCH INFRASTRUCTURES



## SOME KEY RESEARCHERS ESPCI PARIS - PSL



MATHIAS FINK  
ULTRASOUNDS (ERC)



MICKAEL TANTER  
IMAGERY FOR  
MEDICINE (ERC)



CHRISTIAN SERRE  
METAL ORGANIC  
FRAMEWORKS



ANKE LINDNER  
COMPLEX FLUIDS  
CNRS SILVER MEDAL



ANDREW GRIFFITHS  
MICROFLUIDICS FOR  
PHARMA (ERC)



SANDRINE ITHURRIA  
QUANTUM DOTS (ERC)

## KEY FACTS / FIGURES



522 researchers / teacher-researchers  
267 PhD candidates



Prestigious partnerships with academic  
laboratories and companies



About 500 publications per year including  
10-15% in journals with impact factor > 10

  
SAINT-GOBAIN



L'ORÉAL  
PARIS

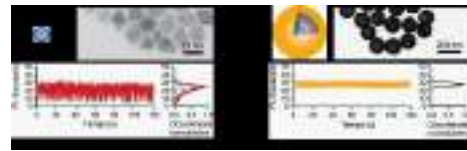


30 patents per year  
3 startups created each year



6 Nobel Prizes, 17 ERC grants, CNRS Silver  
Medal, UNESCO-L'Oréal For Women in  
Science awardees Young Researchers

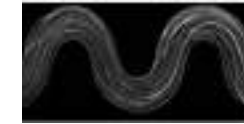
**7**: Nicolas Bergeal  
**8, 42**: Zhuoying Chen  
**41** : Kamran Behnia  
**58,60** : Benoit Fauqué



**PHYSICS AND  
MATERIALS**  
(D. RODITCHEV)

Solid state physics,  
Nanoscience, Instrumentation

**PHYSICS &  
MECHANICS OF  
HETEROGENEOUS  
MEDIA**  
(D. VANDEMBROUCQ)



Hydrodynamics, solid  
mechanics, statistical physics

**49**: Philippe Marcq

**PHYSICS**

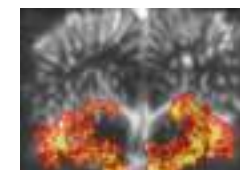
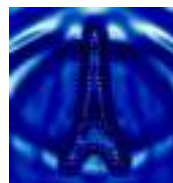
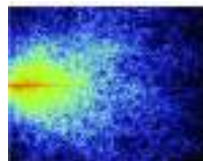
**87**: Xiaoping Jia

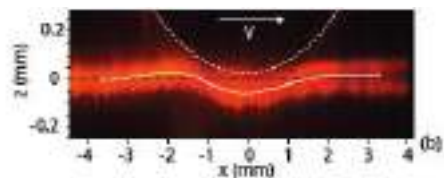
**LANGEVIN  
INSTITUTE  
« WAVES &  
IMAGES »**  
(A. TOURIN)

Wave physics and  
imaging

**PHYSICS FOR  
MEDECINE**  
(M. TANTER)

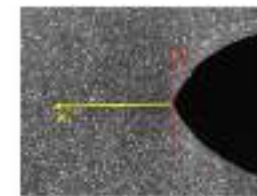
Ultrasound imaging and  
therapy





**GULLIVER**  
(O. DAUCHOT)

Physical-chemistry, soft  
matter theory,  
microfluidics



Soft matter (physics, chemistry)  
mechanical properties,  
interfaces

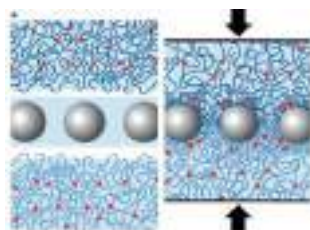
**104,105,107**  
Jean Comtet

**PHYSICS**

**CHEMISTRY**

**1** : Benjamin Laroche

Organic chemistry, Polymers  
chemistry, material science



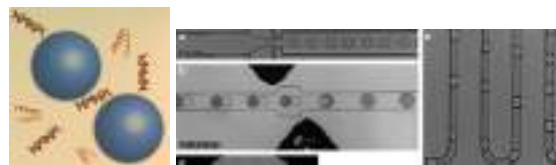
**MOLECULAR,  
MACROMOLECULAR  
CHEMISTRY  
& MATERIALS**  
(M. CLOITRE)

**PARIS  
POROUS  
MATERIAL  
INSTITUTE**  
(C. SERRE)

Porous materials,  
nanomaterials







**CHEMISTARY  
BIOLOGY &  
INNOVATION**  
(J. BIBETTE)

Colloids and micro-fluidics  
Biochemistry,  
Analytical chemistry

**BRAIN  
PLASTICITY**  
(T. PREAT)

Neurobiology,  
brain, memory



**CHEMISTRY**

**BIOLOGY**



Identification and characterization of  
proteins, peptides and peptidomimetic  
molecules

**25** : Corentin Tregouet  
**28** : Annie Colin



# RESEARCH AT INSTITUT D'OPTIQUE GRADUATE SCHOOL



DENIS BOIRON

# PARISTECH – CSC PHD PROGRAM

INSTITUT  
d'OPTIQUE  
GRADUATE SCHOOL  
ParisTech

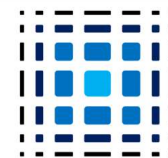
université  
PARIS-SACLAY

**10** PhD proposals

**3**

Fields of research

**2** Labs

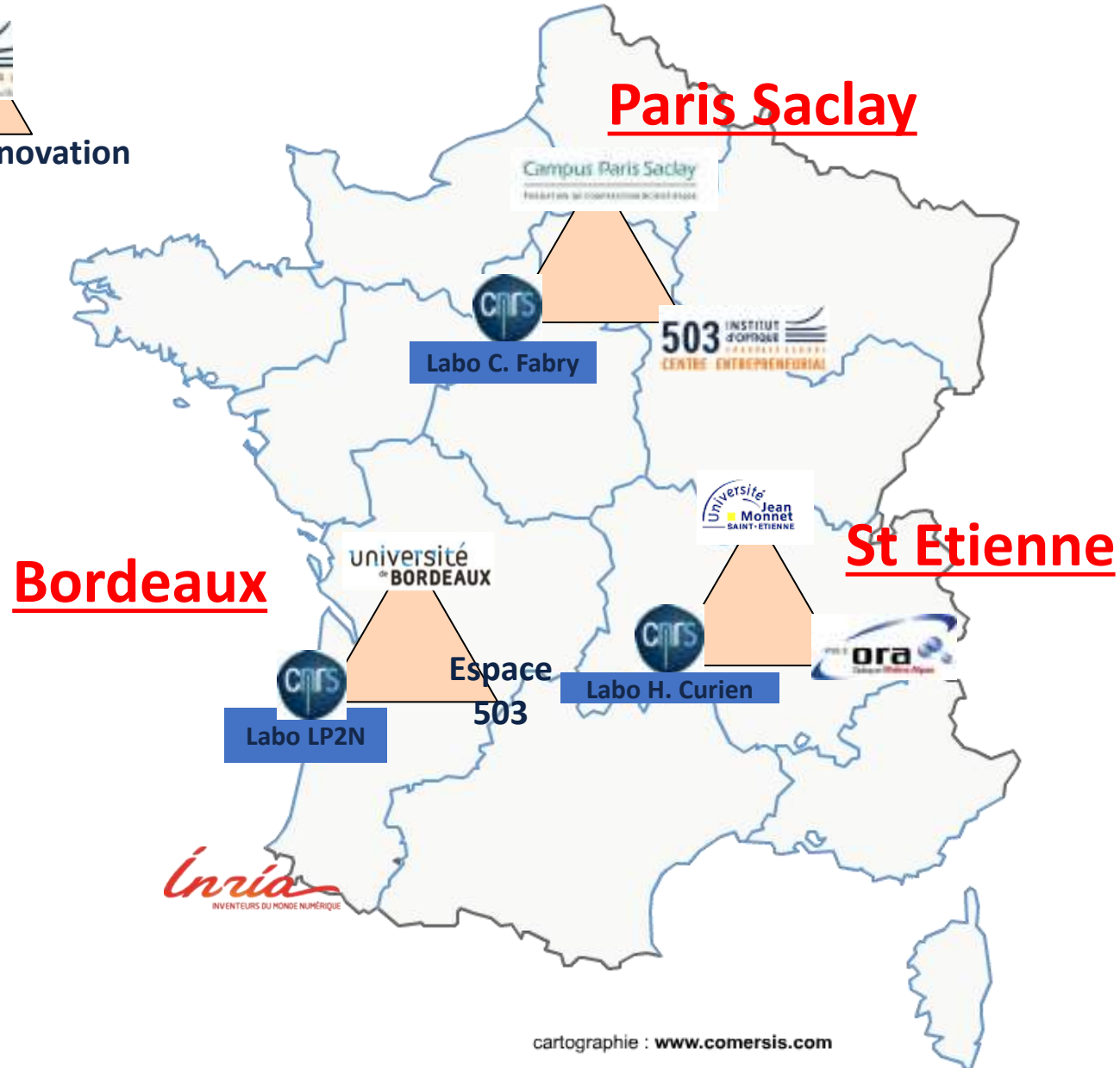
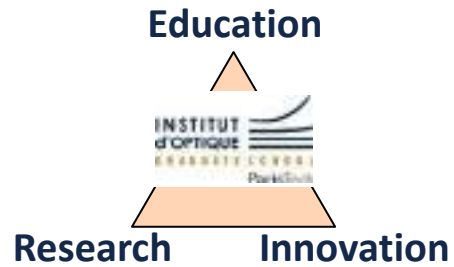


LP2N  
Laboratoire Photonique  
Numérique & Nanosciences



LABORATOIRE  
CHARLES  
FABRY

# Institut d'Optique – 3 locations



## RESEARCHERS AT INSTITUT D'OPTIQUE GRADUATE SCHOOL



ALAIN ASPECT

Holweck Medal (1991)  
Wolf Prize in Physics (2010)  
Albert Einstein Medal (2012)  
ForMemRS (2015)



PHILIPPE GRANGIER

**Léon** Brillouin Grand Prix (2013)  
Jean-Ricard Prize (2008)  
Lazare Carnot Prize (2005)  
CNRS Silver medal (2002)



JEAN-JACQUES GREFFET

OSA fellow  
Recipient of the Servant  
prize of the French  
Academy of Science



Laurent COGNET

Jean Jerphagnon Prize (2010)  
Pierre Faure Prize (2011)  
ERC synergy awardee (2020)

Start up: Muquans, Pasqal, Stereolabs, Damae Medical ...





# LP2N

*Photonics, Numerical and Nanosciences Laboratory (LP2N) is a Joint Research Unit (UMR 5298) between the Institut d'Optique Graduate School, the University of Bordeaux and the CNRS.*

20 researchers

30 PhD/Post-doc

- Light in Complex Nanostructures (COS) group
- "Cold Atoms in Bordeaux" (CAB) group
- BioImaging & OptoFluidics group
- Nano-BioMicroscopy team (NabLab)
- Computational Imaging and Display
- Photonics systems



Laboratoire Photonique, Numérique et Nanosciences (LP2N)

LCF

*Laboratoire Charles Fabry*

40 researchers  
60 PhD/Post-doc



Quantum Gases group

Quantum Optics group

Laser group

Nanophotonics group

Biophotonics group

Imaging & Information group

Nonlinear optics group

XUV optics group



Palaiseau

# LHC

*Laboratoire Hubert Curien*

90 researchers

110 PhD/Post-doc

Micro & nano structuring group

Materials for optics and photonics in  
extreme environments group

Laser-matter interaction group

Image science & computer vision group

Secure embedded systems & hardware  
architecture group

Data intelligence group





# RESEARCH AT MINES PARISTECH - PSL



JULIEN HACCOUN



# PARISTECH – CSC PHD PROGRAM



**2** PhD proposals

**3** Fields of research

**2** Labs





- ▶ Founded in 1783 to train engineers, now **a graduate school in Science, Engineering and Economics**
- ▶ **Founding member of ParisTech & PSL – Université Paris Sciences et Lettres**
- ▶ **Founding and prime member of Institut Carnot M.I.N.E.S.**
- ▶ **Member of IMT – Institut Mines Télécom**
- ▶ **5 sites:** Paris, Evry, Fontainebleau, Palaiseau and Sophia Antipolis
- ▶ ~240 professors, ~1000 students, ~400 PhD candidates
- ▶ **17 research centres & 2 institutes within 5 departments**
  - Earth & Environmental sciences
  - Mathematics & systems
  - Mechanics & materials
  - Energy & processes
  - Economy, management & society
- ▶ **More than 50% of graduated PhD work in industry**



## Research domains at MINES ParisTech – PSL:

### Energy and process engineering

- Centre for Energy Efficiency of Systems ([CES](#))
- Centre Thermodynamics of Processes ([CTP](#))
- Centre Observation, Impacts, Energy ([O.I.E.](#))
- Centre for Processes, Renewable Energies and Energy Systems ([PERSEE](#))

### Earth sciences and environment

- Centre for Geosciences ([GEOSCIENCES](#))
- Higher Institute for Environmental Engineering and Management ([ISIGE](#))

### Mathematics and complex systems

- Centre of robotics ([CAOR](#))
- Centre for bio-informatics ([CBIO](#))
- Centre Automatic Control and Systems ([CAS](#))
- Centre of Applied Mathematics ([CMA](#))
- Centre of Mathemacial Morphology ([CMM](#))
- Centre of Computer Sciences ([CRI](#))

### Materials and mechanics

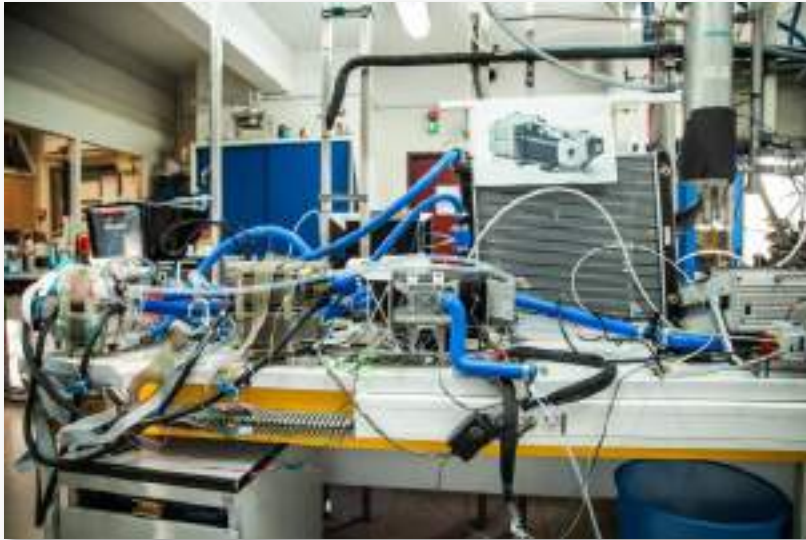
- Centre of Material Transformation ([CEMEF](#))
- Centre of Material Engineering ([MAT](#))

### Economy, management and society

- Centre for Industrial Economics ([CERNA](#))
- Centre for Management Science ([CGS](#))
- Research Center on Risks and Crisis ([CRC](#))
- Centre for the Sociology of Innovation ([CSI](#))

### IHEIE

Institute of Higher Education for  
Innovation and Entrepreneurship



## RESEARCHER AT MINES PARISTECH – PSL RECENT AWARD / GRANT RECIPIENTS

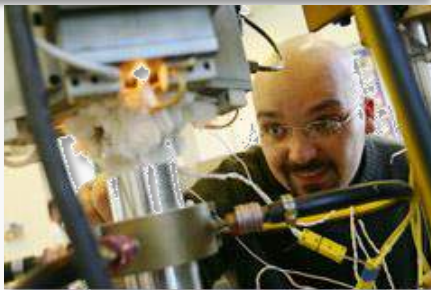
TATIANA BUDTOVA - CEMEF  
CNRS SILVER MEDAL 2020



PIERRE ROUCHON - CAS  
ERC ADVANCED GRANT 2020



ZAKI LEGHTAS - CAS  
ERC STARTING GRANT 2019





## KEY FACTS / FIGURES



~100 PhDs awarded annually (25 % of women, 30 % of foreigners (~50 nationalities), 50 % engineers)  
232 teaching researchers (15% recruited abroad)



400+ scientific publications rank A / year



300+ patents & softwares in 2019



### 2 Nobel prizes

Maurice ALLAIS - Economics - 1988

Georges CHARPAK – Physics – 1992

2 ERC in the past 3 years



Prestigious partnerships with academic laboratories, companies:

20 % of research contracts completed with international partners.

Partnerships with: MIT, CalTech, Jülich, CERN, Stanford

25 industrial chairs / 200 industrial partners

MINES ParisTech ranks number one in France for the volume of contractual research with companies.

1000 /year Research contracts – 30 M



# CONTACTS





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## 4. LABS AND PHD PROPOSALS

NOVEMBER 2021



# ROOMS / THEMES

ROOM 1

→ LIFESCIENCE + ENVIRONMENT SCIENCE

ROOM 2

→ CHEMISTRY AND CHEMICAL ENGINEERING

ROOM 3

→ DESIGN INDUSTRIALIZATION + MATERIAL SCIENCE

ROOM 4

→ PHYSICS, OPTICS + ENERGY

ROOM 5

→ MECHANICS AND FLUIDS

ROOM 6

→ ENERGY + INFORMATION AND COMMUNICATION

# ROOM1 LIFESCIENCE + ENVIRONMENT SCIENCE PROPOSALS/LABS 1/2

| File number | School                 | Title                                                                                                                                                                         | Advisors                                    | Lab                                                                          |
|-------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------|
| 2021_099    | AgroParisTech          | Top-down Regulation of Olfactory Sensitivity in the Insect Brain                                                                                                              | Abhishek Chatterjee, Sylvia Anton           | IEES Paris - Institut d'Ecologie et des Sciences de l'Environnement de Paris |
| 2021_050    | AgroParisTech          | Deciphering the periofactome of a pest species                                                                                                                                | Martine Mad'bèche, Thomas Chertemps         | IEES Paris - Institut d'Ecologie et des Sciences de l'Environnement de Paris |
| 2021_059    | Chimie ParisTech - PSL | Mechanochemistry-assisted continuous catalysis in green solvent                                                                                                               | Christophe Len, Carlo Adamo                 | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_110    | Chimie ParisTech - PSL | Asymmetric Catalysis toward BioRelevant Architecturally Novel Natural and Unnatural Products                                                                                  | Virginie Vidal, Phannarath Phansavath       | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_003    | Chimie ParisTech - PSL | Development of Selective Antibacterial Organometallic Drug Candidates                                                                                                         | Gilles Gasser, Kevin Cariou                 | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_004    | Chimie ParisTech - PSL | Photocatalysis in Living Cells with Earth Abundant Metals for Cancer Therapy                                                                                                  | Gilles Gasser                               | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_078    | Chimie ParisTech - PSL | Engineering of Multimodal Magnetic Resonance and optical Imaging using targeted theranostic nanoparticles for diagnosis and therapeutic studies against cancer in preclinics. | Bich-Thuy Doan                              | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_051    | Chimie ParisTech - PSL | In-silico design of improved electron acceptors for organic photovoltaic applications                                                                                         | Carlo Adamo                                 | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_011    | Chimie ParisTech - PSL | Design of new photoactivable systems using theoretical approaches                                                                                                             | Ilaria Ciofini                              | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_056    | Chimie ParisTech - PSL | Mechanochemistry-Assisted Continuous Synthesis of Organometallic Complexes of Medicinal Relevance                                                                             | Christophe Len, Kevin Cariou, Gilles Gasser | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_079    | Chimie ParisTech - PSL | Continuum solvation for extended periodic systems                                                                                                                             | Frederic Labat, Carlo Adamo                 | I-CLEHS - Institute of chemistry for life and health                         |
| 2021_053    | Chimie ParisTech - PSL | Modeling Proton Transfer Reactions with Biased Ab-initio Dynamics                                                                                                             | Carlo Adamo                                 | I-CLEHS - Institute of chemistry for life and health                         |

| File number | School                    | Title                                                                                                                     | Advisors                                             | Lab                                                              |
|-------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------|
| 2021_049    | ESPCI Paris - PSL         | A mechano-chemical model of hydra morphogenesis                                                                           | Philippe Marcq                                       | Physique et mécanique des Milieux Hétérogènes                    |
| 2021_111    | ESPCI Paris - PSL         | Interactions between the circadian and dopaminergic systems in Parkinson disease studied in Drosophila                    | Birman Serge                                         | Plasticité du cerveau                                            |
| 2021_067    | Arts et Métiers           | Modeling of metal nanoparticles embedded in viscoelastic media using fluid-structure interaction approach                 | Adil El Baroudi, Jean Yves Le Pommellec, Amine Ammar | LAMPA - Laboratoire angevin de mécanique, procédés et innovation |
| 2021_032    | Arts et Métiers           | The mechanics of earthquakes and faulting: Influence of friction properties and fault material on rupture tip propagation | Amine Ammar, Saber El Aren                           | LAMPA - Laboratoire angevin de mécanique, procédés et innovation |
| 2021_084    | Ecole des Ponts ParisTech | Spatio-temporal variability of rainfall drop size distribution across scales: retrieval, characterization and uses        | Ioulia Tchiguirinskaia, Auguste Gires                | HM & Co - Hydrologie Météorologie et Complexité                  |
| 2021_096    | Ecole des Ponts ParisTech | Optimal implementation of Nature-Based Solutions to mitigate Urban Heat Islands                                           | Pierre-Antoine Versini                               | HM & Co - Hydrologie Météorologie et Complexité                  |
| 2021_097    | Ecole des Ponts ParisTech | Develop an innovative framework to assess the environmental performances of a new train station over time                 | Pierre-Antoine Versini                               | HM & Co - Hydrologie Météorologie et Complexité                  |
| 2021_089    | MINES ParisTech - PSL     | Artificial ground freezing : from laboratory experiments development to in-situ scale predictions                         | Ahmed Rouabhi, Emad Jahangir                         | GEOSCIENCES - Centre de Géosciences                              |
| 2021_005    | Chimie ParisTech - PSL    | Iodoarene Catalysis through Aerobic Photocatalytic and Electrocatalytic Activations.                                      | Kevin Cariou                                         | I-CLEHS - Institute of chemistry for life and health             |



# ROOM<sub>2</sub> CHEMISTRY AND CHEMICAL ENGINEERING PROPOSALS/LABS 1/2

| File number | School                 | Title                                                                                                                        | Advisors                                            | Lab                                             |
|-------------|------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|
| 2021_023    | Chimie ParisTech - PSL | Surface treatments of aluminium alloys and corresponding corrosion behavior. Focus on the role of intermetallic particles.   | Jolanta Swiatowska, Frédéric Wiame, Philippe Marcus | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_027    | Chimie ParisTech - PSL | Synthesis of Biodegradable Polymers from Renewable Resources                                                                 | Regis Gauvin, Christophe Thomas                     | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_029    | Chimie ParisTech - PSL | Vectorizing nanoparticles using biocompatible and biodegradable polymer coating mediated by surface organometallic chemistry | Regis Gauvin, Christophe Thomas                     | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_031    | Chimie ParisTech - PSL | Synthesis of Biobased Polymers from Renewable Resources: A New Tandem Approach                                               | Christophe Thomas, Regis Gauvin                     | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_033    | Chimie ParisTech - PSL | Smart multi-catalytic systems for the production of biocompatible polymers                                                   | Christophe Thomas, Regis Gauvin                     | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_047    | Chimie ParisTech - PSL | Environmental behavior of novel multi-principal element alloys containing molybdenum                                         | Dimitri Mercier, Philippe Marcus                    | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_071    | Chimie ParisTech - PSL | Plastics Conversion in Molten Salts                                                                                          | Vincent Semetey, Virginie Lair                      | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_108    | Chimie ParisTech - PSL | Surface reactivity of Mg anode in high-energy density Mg-air battery                                                         | Jolanta Swiatowska                                  | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_030    | Chimie ParisTech - PSL | 2D/3D Perovskites for Stable and High-Efficiency Solar Cells                                                                 | Thierry Pauporté                                    | IRCP - Institut de Recherche de Chimie de Paris |
| 2021_083    | Chimie ParisTech - PSL | Recycling polyurethane using                                                                                                 | Vincent Semetey                                     | IRCP - Institut de Recherche de Chimie de Paris |

# ROOM<sub>2</sub> CHEMISTRY AND CHEMICAL ENGINEERING PROPOSALS/LABS 2/2

| File number | School                | Title                                                                                                 | Advisors                        | Lab                                                      |
|-------------|-----------------------|-------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------|
| 2021_001    | ESPCI Paris - PSL     | Asymmetric multicomponent reactions in continuous-flow                                                | Benjamin Laroche                | C3M - Chimie Moléculaire, Macromoléculaire, et Matériaux |
| 2021_028    | ESPCI Paris - PSL     | Using good vibrations to decrease the viscosity of non brownian suspensions.                          | Annie Colin                     | CBI - Chimie, Biologie et Innovation                     |
| 2021_112    | MINES ParisTech - PSL | Formulation of BioSynthetic Opals: How to Better Imitate the Mineralogy and Develop Inventive Systems | Severine A.e. Boyer, Alain Burr | CEMEF - Centre de mise en forme des matériaux            |
| 2021_025    | ESPCI Paris - PSL     | Entrance effects in osmotic nanofluidics for Blue Energy                                              | Corentin Trégouët, Annie Colin  | CBI - Chimie, Biologie et Innovation                     |

# ROOM<sub>3</sub> DESIGN INDUSTRIALIZATION + MATERIAL SCIENCE

## PROPOSALS/LABS 1/2

| File number | School          | Title                                                                                                        | Advisors                                         | Lab                                                     |
|-------------|-----------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------|
| 2021_095    | Arts et Métiers | Consequences of climate change on the structural integrity of buried large-diameter water-transmission mains | Humberto Yanez Godoy                             | I2M - Institut de Mécanique et d'ingénierie             |
| 2021_012    | Arts et Métiers | Machine learning based Adaptive Multivariate Statistical Process Control                                     | Jean-Yves Dantan, Lazhar Homri, Wahb Zouhri      | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_013    | Arts et Métiers | Supervised machine learning for tolerance allocation                                                         | Jean-Yves Dantan                                 | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_039    | Arts et Métiers | Risk management of engineering products driven by artificial intelligence                                    | Ali Siadat, Jelena Petronijevic, Alain Etienne   | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_043    | Arts et Métiers | Innovative Design for Additive Manufacturing through Knowledge Management and TRIZ                           | Ali Siadat, Alaa Hassan                          | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_052    | Arts et Métiers | Robust robotic grinding control to take into account process variability                                     | Régis Bigot, Thibaut Raharijaona, Sandra Chevret | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_054    | Arts et Métiers | Automation of a flexible and agile finishing process of forged workpieces with industrial robots             | Tudor Balan, Cyrille Baudouin, Sandra Chevret    | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_065    | Arts et Métiers | How to adapt reconfigurable production systems to product variability                                        | Jean-Yves Dantan, Ali Siadat, Paul Stief         | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_085    | Arts et Métiers | Design a safe work-cell for human-robot co-activity in industry                                              | Thibaut Raharijaona, Yier Wu, Jonathan Savin     | LCFC - Laboratoire de conception, fabrication, commande |
| 2021_094    | Arts et Métiers | Identification of parameters control and Improvement from thixoforging process of aluminums (vs Steel)       | Régis Bigot                                      | LCFC - Laboratoire de conception, fabrication, commande |

# ROOM<sub>3</sub> DESIGN INDUSTRIALIZATION + MATERIAL SCIENCE

## PROPOSALS/LABS 2/2

| File number | School          | Title                                                                                                                                                       | Advisors                                                              | Lab                                                              |
|-------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------|
| 2021_106    | Arts et Métiers | Modeling of the wood behavior under severe loading conditions: case of the veneer cutting by rotary peeling process                                         | Louis Denaud, Mariem Yaich, Stéphane Girardon                         | LABOMAP - Laboratoire Bourguignon des matériaux et procédés      |
| 2021_014    | Arts et Métiers | Contribution to the integration of Additive Manufacturing and Augmented Reality in early design phases to foster Creativity                                 | Frédéric Segonds, Ruding Lou                                          | LCPI - Laboratoire conception de produits et innovation          |
| 2021_035    | Arts et Métiers | Learning with immersive technologies                                                                                                                        | Simon Richir, Geoffrey Gorisse, Sylvain Fleury                        | LAMPA - Laboratoire angevin de mécanique, procédés et innovation |
| 2021_086    | Arts et Métiers | Intelligent Visual Analytics for the Design and Monitoring of Turbo Engine Systems                                                                          | Samir Garbaya, Sofiane Khelladi                                       | LIFSE - Laboratoire Ingénierie des Fluides Systèmes Energétiques |
| 2021_026    | Arts et Métiers | Simultaneous optimization of anisotropy and topology of composites from additive manufacturing process by considering strength criteria based on invariants | Marco Montemurro, Anita Catapano                                      | I2M - Institut de Mécanique et d'ingénierie                      |
| 2021_101    | Arts et Métiers | Modeling of the fluid-solid interactions during steady and transient flows of non-Newtonian fluids through deformable porous media                          | Azita Ahmadi-Senichault, Antonio Rodriguez De Castro, Abdelaziz Omari | I2M - Institut de Mécanique et d'ingénierie                      |
| 2021_102    | Arts et Métiers | Multi-scale approach for the development of effective soil remediation methods based on foam injection                                                      | Azita Ahmadi-Senichault, Antonio Rodriguez De Castro, Abdelaziz Omari | I2M - Institut de Mécanique et d'ingénierie                      |

# ROOM4 ENERGY + INFORMATION AND COMMUNICATION

## PROPOSALS/LABS 1/2

| File number | School          | Title                                                                                                                                            | Advisors                                                  | Lab                                                                    |
|-------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------|
| 2021_055    | Arts et Métiers | Sensorless Control for Integrated Multiphase Drives applied to Transportation Systems Using Artificial Intelligence Potentiality                 | Ngac Ky Nguyen                                            | L2EP - aboratoire d'Electrotechnique et électronique de puissance      |
| 2021_063    | Arts et Métiers | Towards the definition of Industry 4.0 and 5.0 Key Performance Indicators                                                                        | Nathalie Klement, Ali Siadat, Virginie Goepp              | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |
| 2021_068    | Arts et Métiers | A decision aid system based on a decentralized architecture to faster the management of hazards occurring under production and logistics systems | Nathalie Klement, Esma Yahia, Lionel Roucoules            | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |
| 2021_074    | Arts et Métiers | Learning with immersive technologies                                                                                                             | Simon Richir, Geoffrey Gorisse, Sylvain Fleury            | LAMPA - Laboratoire angevin de mécanique, procédés et innovation       |
| 2021_075    | Arts et Métiers | Analysis, modeling and simulation of parametric resonances of piezoelectric structures. Application to nano-systems and energy harvesting        | Olivier Thomas, Christophe Giraud-Audine, Simon Benacchio | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |
| 2021_080    | Arts et Métiers | Graph-based unbounded constrained models search for high-level logical reasoning                                                                 | Jean-Philippe Pernot, Mathias Kleiner                     | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |



# ROOM4 ENERGY + INFORMATION AND COMMUNICATION

## PROPOSALS/LABS 2/2

| File number | School                             | Title                                                                                                                                                                   | Advisors                                         | Lab                                                         |
|-------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------|
| 2021_069    | Institut d'Optique Graduate School | Improving super-resolved localization microscopes (PALM) in deep and heterogeneous samples with co-designed optimal phase masks                                         | François Goudail                                 | Laboratoire Charles Fabry                                   |
| 2021_046    | Arts et Métiers                    | Integrated Virtual Simulation and Visualization of Manufacturing Processes using Numerical Simulation and Augmented Reality                                             | Jose Outeiro, Jean-Rémy Chardonnet               | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_045    | Arts et Métiers                    | Development and optimization of tool design/geometry for drilling aerospace alloys using LCO2 and other environmentally friendly metalworking fluids                    | Jose Outeiro, Michael Deligant, Frédéric Rossi   | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_082    | Arts et Métiers                    | Sustainability assessment and multi-physical/multi-scale modelling of surface integrity in machining of Inconel 718 superalloy using advanced cutting tools materials   | José Outeiro, Hélyne Birembaux, Aurélien Besnard | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_021    | Arts et Métiers                    | Surface integrity of Ti-6Al-4V alloy components produced by SLM and machining processes: multiphysics simulations and experimental validation                           | Jose Outeiro, Abdelhadi Moufki                   | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_018    | Arts et Métiers                    | Improvement of surface properties by PVD-Thermochemistry hybrid treatment on metal substrates obtained by conventional manufacturing processes and by powder metallurgy | Corinne Nouveau, Dominique Cotton                | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |

| File number | School                             | Title                                                                                                                          | Advisors                             | Lab                                                             |
|-------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------|
| 2021_024    | ESPCI Paris - PSL                  | Morphological Swarm Robotics                                                                                                   | Olivier Dauchot                      | GULLIVER - Voyages expérimentaux et théoriques en matière molle |
| 2021_088    | ESPCI Paris - PSL                  | Physics and algorithms for molecular modeling                                                                                  | Anthony Maggs                        | GULLIVER - Voyages expérimentaux et théoriques en matière molle |
| 2021_022    | ESPCI Paris - PSL                  | Active Colloidal Gels                                                                                                          | Olivier Dauchot                      | GULLIVER - Voyages expérimentaux et théoriques en matière molle |
| 2021_091    | ESPCI Paris - PSL                  | Active liquid crystals: Controlling active flows through “smart confinement”                                                   | Teresa Lopez-Leon                    | GULLIVER - Voyages expérimentaux et théoriques en matière molle |
| 2021_002    | Institut d'Optique Graduate School | Production of new striking visual appearance with disordered metasurfaces composed of random arrays of resonant nanoparticles. | Philippe Lalanne                     | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_006    | Institut d'Optique Graduate School | Dissipative strong coupling with non-Hermitian nanoresonators.                                                                 | Philippe Lalanne                     | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_020    | Institut d'Optique Graduate School | High-power versatile GHz frequency combs for spectral and temporal domains applications                                        | Eric Cormier, Giorgio Santarelli     | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_070    | Institut d'Optique Graduate School | High sensitive Atom Interferometry using multi-photon interrogation in an optical cavity                                       | Benjamin Canuel, Philippe Bouyer     | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_072    | Institut d'Optique Graduate School | development of UV laser sources for applications in quantum physics                                                            | Adèle Hilico, Giorgio Santarelli     | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_090    | Institut d'Optique Graduate School | Coherent dipole-dipole coupling of quantum emitters and manipulation of their degree of entanglement                           | Brahim Lounis, Jean-Baptiste Trebbia | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_092    | Institut d'Optique Graduate School | Exploring the optical properties of perovskite single nanocrystals and superlattices                                           | Brahim Lounis, Philippe Tamarat      | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_093    | Institut d'Optique Graduate School | Fast Josephson-junction control by optical manipulation of a flux quantum                                                      | Brahim Lounis, Philippe Tamarat      | LP2N - Laboratoire Photonique, numérique et nanosciences        |
| 2021_057    | Institut d'Optique Graduate School | Polarization sensitive single particle tracking and super-resolution microscopy in the near-infrared for brain imaging         | Laurent Cognet                       | LP2N - Laboratoire Photonique, numérique et nanosciences        |

| File number | School               | Title                                                                                                | Advisors                                               | Lab                                                   |
|-------------|----------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|
| 2021_007    | ESPCI<br>Paris - PSL | Novel two dimensional Rashba materials for spintronics.                                              | Nicolas Bergeal, Sergio Vlaic                          | LPEM - Laboratoire Physique et d'études des matériaux |
| 2021_041    | ESPCI<br>Paris - PSL | Hydrodynamics of electrons and phonons in bulk semimetals                                            | Kamran Behnia                                          | LPEM - Laboratoire Physique et d'études des matériaux |
| 2021_058    | ESPCI<br>Paris - PSL | Bad metals and soft mode in the quantum paraelectrics                                                | Benoit Fauqué, Philippe Bourges                        | LPEM - Laboratoire Physique et d'études des matériaux |
| 2021_060    | ESPCI<br>Paris - PSL | Electronic and Thermoelectrical properties of dilute metals                                          | Benoit Fauqué, Kamran Behnia                           | LPEM - Laboratoire Physique et d'études des matériaux |
| 2021_008    | ESPCI<br>Paris - PSL | Efficient and Stable Semi-Transparent Perovskite Solar Cells                                         | Zhuoying Chen, Lionel Aigouy                           | LPEM - Laboratoire Physique et d'études des matériaux |
| 2021_042    | ESPCI<br>Paris - PSL | Nanoparticles, Nanowire, and Nanosheets of Hybrid Perovskite Halides: From Synthesis to Applications | Zhuoying Chen, Alexei Chepelianskii, Miguel Monteverde | LPEM - Laboratoire Physique et d'études des matériaux |
| 2021_104    | ESPCI<br>Paris - PSL | Nano-Rheology of Charged Solid/Liquid Interfaces                                                     | Jean Comtet                                            | SIMM - Sciences et ingénierie de la matière molle     |
| 2021_105    | ESPCI<br>Paris - PSL | Ionic transport at solid/liquid interfaces at the single charge scale                                | Jean Comtet                                            | SIMM - Sciences et ingénierie de la matière molle     |
| 2021_107    | ESPCI<br>Paris - PSL | Single Molecule Investigation of Polymer Chain Dynamics at Interfaces                                | Jean Comtet                                            | SIMM - Sciences et ingénierie de la matière molle     |

# ROOM5 MECHANICS AND FLUIDS PROPOSALS/LABS 1/2

| File number | School            | Title                                                                                                                                    | Advisors                                                  | Lab                                                                          |
|-------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|
| 2021_044    | Arts et Métiers   | Fluid Dynamic Unsteadiness in Multiphase Turbomachinery                                                                                  | Antoine Dazin, Francesco Romano                           | LMFL - Laboratoire de mécanique des fluides de Lille                         |
| 2021_048    | Arts et Métiers   | Single and Multiple Cavitating Bubbles near a Wall                                                                                       | Francesco Romano, Olivier Coutier-Delgosha, Antoine Dazin | LMFL - Laboratoire de mécanique des fluides de Lille                         |
| 2021_081    | Arts et Métiers   | Physically informed and data-driven approaches towards reliable simulation of thermoplastic composite automotive components              | Adil Benaarbia, Fodil Meraghni, Mourad Nachtane           | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_015    | Arts et Métiers   | Development of guidelines tool to prevent the occurrence of plastic buckling in thin structures                                          | Farid Abed-Meraim, Mohamed Ben Bettaieb                   | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_016    | Arts et Métiers   | Development of an advanced CPFEM tool for the prediction of formability limits of polycrystalline thin metal sheets                      | Farid Abed-Meraim, Mohamed Ben Bettaieb                   | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_017    | Arts et Métiers   | Development of an advanced numerical tool to predict the bendability limits during sheet metal forming processes                         | Farid Abed-Meraim, Mohamed Ben Bettaieb                   | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_062    | Arts et Métiers   | Smart and multiphysics solid-shell finite elements for the simulation of 3D thin structures                                              | Farid Abed-Meraim, Hocine Chalal                          | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_064    | Arts et Métiers   | Forming limit predictions for porous materials in cold and warm sheet metal forming                                                      | Farid Abed-Meraim, Hocine Chalal                          | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_073    | Arts et Métiers   | Development of advanced multiscale computational tools for the multiphysics prediction of Carbon nanotubes (CNTs) fuzzy fiber composites | George Chatzigeorgiou, Fodil Meraghni, Adil Benaarbia     | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_077    | Arts et Métiers   | Efficient computational framework to model size effects in miniaturized products                                                         | Farid Abed-Meraim, Mohamed Jebahi                         | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_076    | Arts et Métiers   | Multi-scale data-driven modelling of short-fibre reinforced composites for automotive applications                                       | Fodil Meraghni, Francis Praud                             | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux |
| 2021_087    | ESPCI Paris - PSL | ULTRASONIC IMAGING OF SOFT GRANULAR MATERIALS AND BIOMEDICAL APPLICATIONS                                                                | Xiaoping Jia, Jean-Luc Gennisson                          | Institut Langevin                                                            |

# ROOM5 MECHANICS AND FLUIDS PROPOSALS/LABS 2/2

| File number | School                    | Title                                                                                                                              | Advisors                                                     | Lab                                                                                    |
|-------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 2021_061    | Arts et Métiers           | Improving formability of lightweight metallic materials using process chaining: Incremental Forming and Friction Stir Welding      | Philippe Dal Santo, Idriss Tiba, Sandra Chevret, Tudor Balan | LAMPA - Laboratoire angevin de mécanique, procédés et innovation                       |
| 2021_098    | Arts et Métiers           | Phase field modeling of damage and fracture in polycrystalline materials under thermomechanical loading                            | Amine Ammar, Saber El Arem                                   | LAMPA - Laboratoire angevin de mécanique, procédés et innovation                       |
| 2021_100    | Arts et Métiers           | Nonlinear dynamics of cracked structures: application to wind turbines                                                             | Amine Ammar, Saber El Arem, Adil El Baroudi                  | LAMPA - Laboratoire angevin de mécanique, procédés et innovation                       |
| 2021_109    | Arts et Métiers           | Reconstruction of heterogeneous surface residual-stresses in polycrystalline materials from X-ray diffraction measurements         | Chedly Braham, Leo Morin                                     | PIMM - Laboratoire Procédés et ingénierie en mécanique et matériaux                    |
| 2021_009    | Ecole des Ponts ParisTech | Controlling hygrothermics of biobased construction material                                                                        | Philippe Coussot, Patrick Huber                              | Laboratoire NAVIER (mécanique, physique des matériaux et des structures, géotechnique) |
| 2021_010    | Ecole des Ponts ParisTech | Gas transfer in the compacted bentonite-based materials                                                                            | Yujun Cui                                                    | Laboratoire NAVIER (mécanique, physique des matériaux et des structures, géotechnique) |
| 2021_019    | Arts et Métiers           | Measurement of residual stresses in materials: FEM-based simulation of X-ray diffraction                                           | Dorian Depriester, Laurent Barrallier                        | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                           |
| 2021_034    | Arts et Métiers           | Multiscale stress/strain analysis of polycrystalline silicon for photovoltaic applications                                         | Laurent Barrallier                                           | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                           |
| 2021_036    | Arts et Métiers           | Thermal and mechanical fatigue behavior of selective laser melting maraging steel (H11 or H13)                                     | Nan Kang, Mohamed El Mansori                                 | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                           |
| 2021_037    | Arts et Métiers           | Multi-scaled structure design of thermal controllable complex conforming cooling channel system in selective laser melting process | Mohamed El Mansori, Nan Kang                                 | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                           |
| 2021_038    | Arts et Métiers           | Mechanical and Functional fatigue behavior of selective laser melted NiTi Shape Memory Alloy                                       | Mohamed El Mansori, Mourad El Hadrouz                        | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                           |
| 2021_040    | Arts et Métiers           | Optimized set-up to characterize the contact fatigue damage of material with gradient properties                                   | Jean-Patrick Goulmy, Laurent Barrallier                      | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                           |



# ROOM6 ENERGY + INFORMATION AND COMMUNICATION

## PROPOSALS/LABS 1/2

| File number | School          | Title                                                                                                                                            | Advisors                                                  | Lab                                                                    |
|-------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------|
| 2021_055    | Arts et Métiers | Sensorless Control for Integrated Multiphase Drives applied to Transportation Systems Using Artificial Intelligence Potentiality                 | Ngac Ky Nguyen                                            | L2EP - aboratoire d'Electrotechnique et électronique de puissance      |
| 2021_063    | Arts et Métiers | Towards the definition of Industry 4.0 and 5.0 Key Performance Indicators                                                                        | Nathalie Klement, Ali Siadat, Virginie Goepp              | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |
| 2021_068    | Arts et Métiers | A decision aid system based on a decentralized architecture to faster the management of hazards occurring under production and logistics systems | Nathalie Klement, Esma Yahia, Lionel Roucoules            | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |
| 2021_074    | Arts et Métiers | Learning with immersive technologies                                                                                                             | Simon Richir, Geoffrey Gorisse, Sylvain Fleury            | LAMPA - Laboratoire angevin de mécanique, procédés et innovation       |
| 2021_075    | Arts et Métiers | Analysis, modeling and simulation of parametric resonances of piezoelectric structures. Application to nano-systems and energy harvesting        | Olivier Thomas, Christophe Giraud-Audine, Simon Benacchio | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |
| 2021_080    | Arts et Métiers | Graph-based unbounded constrained models search for high-level logical reasoning                                                                 | Jean-Philippe Pernot, Mathias Kleiner                     | LISPEN - Laboratoire d'ingénierie des systčmes physiques et numériques |

# ROOM6 ENERGY + INFORMATION AND COMMUNICATION

## PROPOSALS/LABS 2/2

| File number | School                             | Title                                                                                                                                                                   | Advisors                                         | Lab                                                         |
|-------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------|
| 2021_069    | Institut d'Optique Graduate School | Improving super-resolved localization microscopes (PALM) in deep and heterogeneous samples with co-designed optimal phase masks                                         | François Goudail                                 | Laboratoire Charles Fabry                                   |
| 2021_046    | Arts et Métiers                    | Integrated Virtual Simulation and Visualization of Manufacturing Processes using Numerical Simulation and Augmented Reality                                             | Jose Outeiro, Jean-Rémy Chardonnet               | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_045    | Arts et Métiers                    | Development and optimization of tool design/geometry for drilling aerospace alloys using LCO2 and other environmentally friendly metalworking fluids                    | Jose Outeiro, Michael Deligant, Frédéric Rossi   | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_082    | Arts et Métiers                    | Sustainability assessment and multi-physical/multi-scale modelling of surface integrity in machining of Inconel 718 superalloy using advanced cutting tools materials   | José Outeiro, Hélyne Birembaux, Aurélien Besnard | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_021    | Arts et Métiers                    | Surface integrity of Ti-6Al-4V alloy components produced by SLM and machining processes: multiphysics simulations and experimental validation                           | Jose Outeiro, Abdelhadi Moufki                   | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |
| 2021_018    | Arts et Métiers                    | Improvement of surface properties by PVD-Thermochemistry hybrid treatment on metal substrates obtained by conventional manufacturing processes and by powder metallurgy | Corinne Nouveau, Dominique Cotton                | LABOMAP - Laboratoire Bourguignon des matériaux et procédés |

# PHD PROPOSALS - AGROPARISTECH

| File number | Research field                                                                                                                                                                                                                  | Title                                                            | Advisors                            | Lab                                                                          | Lab location | Lab website                                                       | Doctorate awarded by | Contact point                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------|----------------------|-----------------------------------------|
| 099         | Biology, Biophysics and Biochemistry, Environment Science and Technology, Sustainable Development, Geosciences, Life and Health Science and Technology , Life Science and Engineering for Agriculture, Food and the Environment | Top-down Regulation of Olfactory Sensitivity in the Insect Brain | Abhishek Chatterjee, Sylvia Anton   | IEES Paris - Institut d'Ecologie et des Sciences de l'Environnement de Paris | Versailles   | <a href="https://iees-paris.fr/en/">https://iees-paris.fr/en/</a> | AgroParisTech        | abhishek.chatterjee@inrae.fr            |
| 050         | Biology, Biophysics and Biochemistry, Life Science and Engineering for Agriculture, Food and the Environment                                                                                                                    | Deciphering the periofactome of a pest species                   | Martine Mad'bèche, Thomas Chertemps | IEES Paris - Institut d'Ecologie et des Sciences de l'Environnement de Paris | Paris        | <a href="https://iees-paris.fr/">https://iees-paris.fr/</a>       | AgroParisTech        | thomas.chertemps@sorbonne-universite.fr |

# PHD PROPOSALS – ARTS ET MÉTIERS 1/5

| File number | Research field                                                                                                                                                                                                                       | Subfield                                 | Titile                                                                                                                             | Advisors                                                              | Lab                                                              | Lab location | Lab website                                                                 | Doctorate awarded by | Contact point                                                |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------|----------------------|--------------------------------------------------------------|
| 067         | Biology, Biophysics and Biochemistry, Life and Health Science and Technology , Material science, Mechanics and Fluids                                                                                                                |                                          | Modeling of metal nanoparticles embedded in viscoelastic media using fluid-structure interaction approach                          | Adil El Baroudi, Jean Yves Le Pommellec, Amine Ammar                  | LAMPA - Laboratoire angevin de mécanique, procédés et innovation | Angers       | <a href="http://lampa.ensam.eu/">http://lampa.ensam.eu/</a>                 | HESAM Université     | adil.elbaroudi@ensam.eu                                      |
| 101         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes, Environment Science and Technology, Sustainable Development, Geosciences, Life and Health Science and Technology , Material science, Mechanics and Fluids | Transfer in porous media                 | Modeling of the fluid-solid interactions during steady and transient flows of non-Newtonian fluids through deformable porous media | Azita Ahmadi-Senichault, Antonio Rodriguez De Castro, Abdelaziz Omari | I2M - Institut de Mécanique et d'ingénierie                      | Bordeaux     | <a href="https://www.i2m.u-bordeaux.fr/">https://www.i2m.u-bordeaux.fr/</a> | HESAM Université     | azita.ahmadi@ensam.eu                                        |
| 102         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes, Environment Science and Technology, Sustainable Development, Geosciences, Material science, Mechanics and Fluids                                          | Transfer in porous media                 | Multi-scale approach for the development of effective soil remediation methods based on foam injection                             | Azita Ahmadi-Senichault, Antonio Rodriguez De Castro, Abdelaziz Omari | I2M - Institut de Mécanique et d'ingénierie                      | Bordeaux     | <a href="https://www.i2m.u-bordeaux.fr">https://www.i2m.u-bordeaux.fr</a>   | HESAM Université     | azita.ahmadi@ensam.eu                                        |
| 012         | Design, Industrialization                                                                                                                                                                                                            | Industrial Eng., Artificial Intelligence | Machine learning based Adaptive Multivariate Statistical Process Control                                                           | Jean-Yves Dantan, Lazhar Homri, Wahb Zouhri                           | LCFC - Laboratoire de conception, fabrication, commande          |              | <a href="http://lcfc.ensam.eu/">http://lcfc.ensam.eu/</a>                   | HESAM Université     | lazhar.homri@ensam.eu                                        |
| 039         | Design, Industrialization                                                                                                                                                                                                            | Industrial Engineering                   | Risk management of engineering products driven by artificial intelligence                                                          | Ali Siadat, Jelena Petronijevic, Alain Etienne                        | LCFC - Laboratoire de conception, fabrication, commande          | Metz         | <a href="http://lcfc.ensam.eu/">http://lcfc.ensam.eu/</a>                   | HESAM Université     | jelena.petronijevic@ensam.eu                                 |
| 043         | Design, Industrialization                                                                                                                                                                                                            |                                          | Innovative Design for Additive Manufacturing through Knowledge Management and TRIZ                                                 | Ali Siadat, Alaa Hassan                                               | LCFC - Laboratoire de conception, fabrication, commande          | Metz         | <a href="http://lcfc.ensam.eu/">http://lcfc.ensam.eu/</a>                   | HESAM Université     | alaa.hassan@univ-lorraine.fr;<br>ali.siadat@univ-lorraine.fr |
| 052         | Design, Industrialization                                                                                                                                                                                                            | Robotics & Manufacturing                 | Robust robotic grinding control to take into account process variability                                                           | Régis Bigot, Thibaut Raharijaona, Sandra Chevret                      | LCFC - Laboratoire de conception, fabrication, commande          | Metz         | <a href="http://lcfc.ensam.eu">http://lcfc.ensam.eu</a>                     | HESAM Université     | sandra.chevret@ensam.eu                                      |
| 054         | Design, Industrialization                                                                                                                                                                                                            | Manufacturing                            | Automation of a flexible and agile finishing process of forged workpieces with industrial robots                                   | Tudor Balan, Cyrille Baudouin, Sandra Chevret                         | LCFC - Laboratoire de conception, fabrication, commande          | Metz         | <a href="http://lcfc.ensam.eu">http://lcfc.ensam.eu</a>                     | HESAM Université     | sandra.chevret@ensam.eu                                      |
| 085         | Design, Industrialization                                                                                                                                                                                                            |                                          | Design a safe work-cell for human-robot co-activity in industry                                                                    | Thibaut Raharijaona, Yier Wu, Jonathan Savin                          | LCFC - Laboratoire de conception, fabrication, commande          | Metz         | <a href="http://lcfc.ensam.eu">http://lcfc.ensam.eu</a>                     | HESAM Université     | yier.wu@ensam.eu                                             |
| 106         | Design, Industrialization, Energy, Processes, Environment Science and Technology, Sustainable Development, Geosciences, Material science, Mechanics and Fluids                                                                       |                                          | Modeling of the wood behavior under severe loading conditions: case of the veneer cutting by rotary peeling process                | Louis Denaud, Mariem Yaich, Stéphane Girardon                         | LABOMAP - Laboratoire Bourguignon des matériaux et procédés      | Cluny        | <a href="http://labomap.ensam.eu/">http://labomap.ensam.eu/</a>             | HESAM Université     | louis.denaud@ensam.eu                                        |

# PHD PROPOSALS – ARTS ET MÉTIERS 2/5

| File number | Research field                                                                                                          | Subfield                                                                                                                          | Titile                                                                                                                                                      | Advisors                                        | Lab                                                                          | Lab location | Lab website                                                                       | Doctorate awarded by | Contact point             |
|-------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------|----------------------|---------------------------|
| 014         | Design, Industrialization, Information and Communication Science and Technology                                         | Additive Manufacturing, Augmented Reality, Design Methodology, Creativity, Computer Graphics.                                     | Contribution to the integration of Additive Manufacturing and Augmented Reality in early design phases to foster Creativity                                 | Frédéric Segonds, Ruding Lou                    | LCPI - Laboratoire conception de produits et innovation                      | Paris        | <a href="http://lcpi.ensam.eu/">http://lcpi.ensam.eu/</a>                         | HESAM Université     | ruding.lou@ensam.eu       |
| 035         | Design, Industrialization, Information and Communication Science and Technology                                         | Virtual Reality                                                                                                                   | Learning with immersive technologies                                                                                                                        | Simon Richir, Geoffrey Gorisse, Sylvain Fleury  | LAMPA - Laboratoire angevin de mécanique, procédés et innovation             |              | <a href="http://lampa.ensam.eu/">http://lampa.ensam.eu/</a>                       | HESAM Université     | sylvain.fleury@ensam.eu   |
| 065         | Design, Industrialization, Information and Communication Science and Technology                                         | Engineering -> Industrial Engineering                                                                                             | How to adapt reconfigurable production systems to product variability                                                                                       | Jean-Yves Dantan, Ali Siadat, Paul Stief        | LCFC - Laboratoire de conception, fabrication, commande                      | Metz         | <a href="http://lcfc.ensam.eu/">http://lcfc.ensam.eu/</a>                         | HESAM Université     | paul.stief@ensam.eu       |
| 086         | Design, Industrialization, Information and Communication Science and Technology, Material science, Mechanics and Fluids | Intelligent Design and monitoring of Sustainable Systems                                                                          | Intelligent Visual Analytics for the Design and Monitoring of Turbo Engine Systems                                                                          | Samir Garbaya, Sofiane Khelladi                 | LIFSE - Laboratoire Ingénierie des Fluides Systèmes Energétiques             | Paris        | <a href="https://lifse.ar-tsetmetiers.fr/">https://lifse.ar-tsetmetiers.fr/</a>   | HESAM Université     | samir.garbaya@ensam.eu    |
| 081         | Design, Industrialization, Material science, Mechanics and Fluids                                                       | Mechanical engineering, Computational mechanics, Mechanics of Materials.                                                          | Physically informed and data-driven approaches towards reliable simulation of thermoplastic composite automotive components                                 | Adil Benaarbia, Fodil Meraghni, Mourad Nachtane | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz         | <a href="http://www.lem3.univ-lorraine.fr/">http://www.lem3.univ-lorraine.fr/</a> | HESAM Université     | adil.benaarbia@ensam.eu   |
| 094         | Design, Industrialization, Material science, Mechanics and Fluids                                                       | New Forming Process and Processus Eng., and material Eng,                                                                         | Identification of parameters control and Improvement from thixoforging process of aluminums (vs Steel)                                                      | Régis Bigot                                     | LCFC - Laboratoire de conception, fabrication, commande                      | Metz         | <a href="http://lcfc.ensam.eu/">http://lcfc.ensam.eu/</a>                         | HESAM Université     | eric.becker@ensam.eu      |
| 026         | Design, Industrialization, Material science, Mechanics and Fluids, Mathematics and their applications                   | Mechanics of materials and structures, additive manufacturing, topology optimisation, material optimisation, multi-scale analysis | Simultaneous optimization of anisotropy and topology of composites from additive manufacturing process by considering strength criteria based on invariants | Marco Montemurro, Anita Catapano                | I2M - Institut de Mécanique et d'ingénierie                                  | Bordeaux     | <a href="https://www.i2m.u-bordeaux.fr/">https://www.i2m.u-bordeaux.fr/</a>       | HESAM Université     | marco.montemurro@ensam.eu |
| 013         | Design, Industrialization, Mathematics and their applications                                                           |                                                                                                                                   | Supervised machine learning for tolerance allocation                                                                                                        | Jean-Yves Dantan                                | LCFC - Laboratoire de conception, fabrication, commande                      | Metz         | <a href="http://www.lcfc.fr">http://www.lcfc.fr</a>                               | HESAM Université     | jean-yves.dantan@ensam.eu |
| 055         | Energy, Processes                                                                                                       | Electrical Engineering and Automation Control                                                                                     | Sensorless Control for Integrated Multiphase Drives applied to Transportation Systems Using Artificial Intelligence Potentiality                            | Ngac Ky Nguyen                                  | L2EP - Laboratoire d'Electrotechnique et électronique de puissance           | Lille        | <a href="http://l2ep.univ-lille.fr">http://l2ep.univ-lille.fr</a>                 | HESAM Université     | ngacky.nguyen@ensam.eu    |
| 045         | Energy, Processes, Material science, Mechanics and Fluids                                                               | Mechanical Engineering, Manufacturing Processes, Fluid dynamics                                                                   | Development and optimization of tool design/geometry for drilling aerospace alloys using LCO2 and other environmentally friendly metalworking fluids        | Jose Outeiro, Michael Deligant, Frédéric Rossi  | LABOMAP - Laboratoire Bourguignon des matériaux et procédés                  | Cluny        | <a href="http://labomape.ensam.eu">http://labomape.ensam.eu</a>                   | HESAM Université     | jose.outeiro@ensam.eu     |



# PHD PROPOSALS – ARTS ET MÉTIERS 3/5

| File number | Research field                                                                                                                   | Subfield                                                                                                                                   | Titile                                                                                                                                           | Advisors                                                  | Lab                                                                          | Lab location    | Lab website                       | Doctorate awarded by   | Contact point                      |
|-------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|-----------------|-----------------------------------|------------------------|------------------------------------|
| 032         | Environment Science and Technology, Sustainable Development, Geosciences, Material science, Mechanics and Fluids                 |                                                                                                                                            | The mechanics of earthquakes and faulting: Influence of friction properties and fault material on rupture tip propagation                        | Amine Ammar, Saber El Arem                                | LAMPA - Laboratoire angevin de mécanique, procédés et innovation             | Angers          | lampa.ensam.eu                    | HESAM Université       | saber.elarem@ensam.eu              |
| 095         | Environment Science and Technology, Sustainable Development, Geosciences, Material science, Mechanics and Fluids                 |                                                                                                                                            | Consequences of climate change on the structural integrity of buried large-diameter water-transmission mains                                     | Humberto Yanez Godoy                                      | I2M - Institut de Mécanique et d'ingénierie                                  | Bordeaux        | https://www.i2m.u-bordeaux.fr     | Université de Bordeaux | humberto.yanez-godoy@u-bordeaux.fr |
| 063         | Information and Communication Science and Technology                                                                             |                                                                                                                                            | Towards the definition of Industry 4.0 and 5.0 Key Performance Indicators                                                                        | Nathalie Klement, Ali Siadat, Virginie Goepp              | LISPEN - Laboratoire d'ingénierie des systèmes physiques et numériques       | Lille           | https://lispensam.eu/             | HESAM Université       | nathalie.klement@ensam.eu          |
| 068         | Information and Communication Science and Technology                                                                             |                                                                                                                                            | A decision aid system based on a decentralized architecture to faster the management of hazards occurring under production and logistics systems | Nathalie Klement, Esma Yahia, Lionel Roucoules            | LISPEN - Laboratoire d'ingénierie des systèmes physiques et numériques       | Lille           | https://lispensam.eu/             | HESAM Université       | nathalie.klement@ensam.eu          |
| 074         | Information and Communication Science and Technology                                                                             |                                                                                                                                            | Learning with immersive technologies                                                                                                             | Simon Richir, Geoffrey Gorisse, Sylvain Fleury            | LAMPA - Laboratoire angevin de mécanique, procédés et innovation             | Angers          | http://lampa.ensam.eu/            | HESAM Université       | sylvain.fleury@ensam.eu            |
| 046         | Information and Communication Science and Technology, Material science, Mechanics and Fluids                                     | Manufacturing Processes, Augmented Reality, Virtual Reality and Mixed Reality                                                              | Integrated Virtual Simulation and Visualization of Manufacturing Processes using Numerical Simulation and Augmented Reality                      | Jose Outeiro, Jean-Rémy Chardonnet                        | LABOMAP - Laboratoire Bourguignon des matériaux et procédés                  | Cluny           | http://labomap.ensam.eu           | HESAM Université       | jose.outeiro@ensam.eu              |
| 075         | Information and Communication Science and Technology, Material science, Mechanics and Fluids, Mathematics and their applications | Nonlinear Dynamics, Intelligent Systems, Micro/Nano Electromechanical Systems                                                              | Analysis, modeling and simulation of parametric resonances of piezoelectric structures. Application to nano-systems and energy harvesting        | Olivier Thomas, Christophe Giraud-Audine, Simon Benacchio | LISPEN - Laboratoire d'ingénierie des systèmes physiques et numériques       | Lille           | https://lispensam.eu/             | HESAM Université       | jean-francois.deu@lre.cnrs.fr      |
| 080         | Information and Communication Science and Technology, Mathematics and their applications                                         | Computer science, combinatorial algorithms, constraint programming, finite model search, graph theory, cyber-physical systems engineering. | Graph-based unbounded constrained models search for high-level logical reasoning                                                                 | Jean-Philippe Pernot, Mathias Kleiner                     | LISPEN - Laboratoire d'ingénierie des systèmes physiques et numériques       | Aix-en-Provence | lispensam.eu                      | HESAM Université       | mathias.kleiner@ensam.eu           |
| 015         | Material science, Mechanics and Fluids                                                                                           | Mechanical Engineering, Computational Mechanics                                                                                            | Development of guidelines tool to prevent the occurrence of plastic buckling in thin structures                                                  | Farid Abed-Meraim, Mohamed Ben Bettaieb                   | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz            | http://www.lem3.univ-lorraine.fr/ | HESAM Université       | Mohamed.BenBettaieb@ensam.eu       |
| 016         | Material science, Mechanics and Fluids                                                                                           | Mechanical Engineering, Computational Mechanics                                                                                            | Development of an advanced CPFEM tool for the prediction of formability limits of polycrystalline thin metal sheets                              | Farid Abed-Meraim, Mohamed Ben Bettaieb                   | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz            | http://www.lem3.univ-lorraine.fr/ | HESAM Université       | Mohamed.BenBettaieb@ensam.eu       |

# PHD PROPOSALS – ARTS ET MÉTIERS 4/5

| File number | Research field                         | Subfield                                                                                                                  | Titile                                                                                                                                                                  | Advisors                                                  | Lab                                                                          | Lab location         | Lab website                                                                       | Doctorate awarded by | Contact point                |
|-------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------|----------------------|------------------------------|
| 017         | Material science, Mechanics and Fluids |                                                                                                                           | Development of an advanced numerical tool to predict the bendability limits during sheet metal forming processes                                                        | Farid Abed-Meraim, Mohamed Ben Bettaieb                   | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz                 | <a href="http://www.lem3.univ-lorraine.fr/">http://www.lem3.univ-lorraine.fr/</a> | HESAM Université     | Mohamed.BenBettaieb@ensam.eu |
| 018         | Material science, Mechanics and Fluids | Material science and engineering, Surface treatment, PVD coatings, thermochemical treatment, powder metallurgy, diffusion | Improvement of surface properties by PVD-Thermochemistry hybrid treatment on metal substrates obtained by conventional manufacturing processes and by powder metallurgy | Corinne Nouveau, Dominique Cotton                         | LABOMAP - Laboratoire Bourguignon des matériaux et procédés                  | Cluny                | <a href="http://labomap.ensam.eu">labomap.ensam.eu</a>                            | HESAM Université     | corinne.nouveau@ensam.eu     |
| 019         | Material science, Mechanics and Fluids |                                                                                                                           | Measurement of residual stresses in materials: FEM-based simulation of X-ray diffraction                                                                                | Dorian Depriester, Laurent Barrallier                     | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                 | Aix-en-Provence      | <a href="https://www.msmp.eu/">https://www.msmp.eu/</a>                           | HESAM Université     | dorian.depriester@ensam.eu   |
| 021         | Material science, Mechanics and Fluids | Mechanical Engineering, Manufacturing processes, Additive Manufacturing, Machining                                        | Surface integrity of Ti-6Al-4V alloy components produced by SLM and machining processes: multiphysics simulations and experimental validation                           | Jose Outeiro, Abdelhadi Moufki                            | LABOMAP - Laboratoire Bourguignon des matériaux et procédés                  | Cluny                | <a href="http://labomap.ensam.eu/">http://labomap.ensam.eu/</a>                   | HESAM Université     | Jose Outeiro                 |
| 034         | Material science, Mechanics and Fluids | Photovoltaic                                                                                                              | Multiscale stress/strain analysis of polycrystalline silicon for photovoltaic applications                                                                              | Laurent Barrallier                                        | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                 | Aix-en-Provence      | <a href="http://msmp.eu">msmp.eu</a>                                              | HESAM Université     | laurent.barrallier@ensam.eu  |
| 036         | Material science, Mechanics and Fluids |                                                                                                                           | Thermal and mechanical fatigue behavior of selective laser melting maraging steel (H11 or H13)                                                                          | Nan Kang, Mohamed El Mansori                              | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                 | Châlons-en-Champagne | <a href="https://www.msmp.eu">https://www.msmp.eu</a>                             | HESAM Université     | nan.kang@ensam.eu            |
| 037         | Material science, Mechanics and Fluids |                                                                                                                           | Multi-scaled structure design of thermal controllable complex conforming cooling channel system in selective laser melting process                                      | Mohamed El Mansori, Nan Kang                              | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                 | Châlons-en-Champagne | <a href="https://www.msmp.eu">https://www.msmp.eu</a>                             | HESAM Université     | nan.kang@ensam.eu            |
| 038         | Material science, Mechanics and Fluids |                                                                                                                           | Mechanical and Functional fatigue behavior of selective laser melted NiTi Shape Memory Alloy                                                                            | Mohamed El Mansori, Mourad El Hadrouz                     | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                 | Châlons-en-Champagne | <a href="https://www.msmp.eu">https://www.msmp.eu</a>                             | HESAM Université     | mourad.elhadrouz@ensam.eu    |
| 040         | Material science, Mechanics and Fluids |                                                                                                                           | Optimized set-up to characterize the contact fatigue damage of material with gradient properties                                                                        | Jean-Patrick Goulmy, Laurent Barrallier                   | MSMP - Laboratoire Mécanique, Surface, Matériaux et Procédés                 | Aix-en-Provence      | <a href="https://www.msmp.eu/">https://www.msmp.eu/</a>                           | HESAM Université     | jean-patrick.goulmy@ensam.eu |
| 044         | Material science, Mechanics and Fluids |                                                                                                                           | Fluid Dynamic Unsteadiness in Multiphase Turbomachinery                                                                                                                 | Antoine Dazin, Francesco Romano                           | LMFL - Laboratoire de mécanique des fluides de Lille                         | Lille                | <a href="https://lmfl.cnrs.fr/en/home/">https://lmfl.cnrs.fr/en/home/</a>         | HESAM Université     | antoine.dazin@ensam.eu       |
| 048         | Material science, Mechanics and Fluids |                                                                                                                           | Single and Multiple Cavitating Bubbles near a Wall                                                                                                                      | Francesco Romano, Olivier Coutier-Delgosha, Antoine Dazin | LMFL - Laboratoire de mécanique des fluides de Lille                         | Lille                | <a href="https://lmfl.cnrs.fr/en/home/">https://lmfl.cnrs.fr/en/home/</a>         | HESAM Université     | francesco.romano@ensam.eu    |

# PHD PROPOSALS – ARTS ET MÉTIERS 5/5

| File number | Research field                                                             | Subfield                                                                | Titile                                                                                                                                                                | Advisors                                                    | Lab                                                                          | Lab location | Lab website                                                                       | Doctorate awarded by | Contact point                   |
|-------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------|----------------------|---------------------------------|
| 061         | Material science, Mechanics and Fluids                                     | Mechanical, Material and Process Engineering                            | Improving formability of lightweight metallic materials using process chaining: Incremental Forming and Friction Stir Welding                                         | Philippe Dal Santo, Idriss Tiba, Sandra Chevet, Tudor Balan | LAMPA - Laboratoire angevin de mécanique, procédés et innovation             | Angers       | <a href="http://lampa.ensam.eu/">http://lampa.ensam.eu/</a>                       | HESAM Université     | idriss.tiba@ensam.eu            |
| 062         | Material science, Mechanics and Fluids                                     | Mechanical Engineering                                                  | Smart and multiphysics solid-shell finite elements for the simulation of 3D thin structures                                                                           | Farid Abed-Meraim, Hocine Chahla                            | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz         | <a href="http://www.lem3.univ-lorraine.fr/">http://www.lem3.univ-lorraine.fr/</a> | HESAM Université     | farid.abed-meraim@ensam.eu      |
| 064         | Material science, Mechanics and Fluids                                     | Mechanical Engineering                                                  | Forming limit predictions for porous materials in cold and warm sheet metal forming                                                                                   | Farid Abed-Meraim, Hocine Chahla                            | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz         | <a href="http://www.lem3.univ-lorraine.fr/">http://www.lem3.univ-lorraine.fr/</a> | HESAM Université     | farid.abed-meraim@ensam.eu      |
| 073         | Material science, Mechanics and Fluids                                     | Mechanical engineering, Computational mechanics, Mechanics of Materials | Development of advanced multiscale computational tools for the multiphysics prediction of Carbon nanotubes (CNTs) fuzzy fiber composites                              | George Chatzigeorgiou, Fodil Meraghni, Adil Benaarbia       | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz         | <a href="http://www.lem3.univ-lorraine.fr/">http://www.lem3.univ-lorraine.fr/</a> | HESAM Université     | georges.chatzigeorgiou@ensam.eu |
| 077         | Material science, Mechanics and Fluids                                     | Computational mechanics, Nonlinear mechanics, Generalized continua      | Efficient computational framework to model size effects in miniaturized products                                                                                      | Farid Abed-Meraim, Mohamed Jebahi                           | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz         | <a href="http://www.lem3.fr">http://www.lem3.fr</a>                               | HESAM Université     | mohamed.jebahi@ensam.eu         |
| 082         | Material science, Mechanics and Fluids                                     | Mechanical Engineering, Manufacturing Processes                         | Sustainability assessment and multi-physical/multi-scale modelling of surface integrity in machining of Inconel 718 superalloy using advanced cutting tools materials | José Outeiro, Hélène Birembaux, Aurélien Besnard            | LABOMAP - Laboratoire Bourguignon des matériaux et procédés                  | Cluny        | <a href="http://labomap.ensam.eu/">http://labomap.ensam.eu/</a>                   | HESAM Université     | jose.outeiro@ensam.eu           |
| 098         | Material science, Mechanics and Fluids                                     |                                                                         | Phase field modeling of damage and fracture in polycrystalline materials under thermomechanical loading                                                               | Amine Ammar, Saber El Arem                                  | LAMPA - Laboratoire angevin de mécanique, procédés et innovation             | Angers       | <a href="http://lampa.ensam.eu/">http://lampa.ensam.eu/</a>                       | HESAM Université     | saber.elarem@ensam.eu           |
| 100         | Material science, Mechanics and Fluids                                     |                                                                         | Nonlinear dynamics of cracked structures: application to wind turbines                                                                                                | Amine Ammar, Saber El Arem, Adil El Baroudi                 | LAMPA - Laboratoire angevin de mécanique, procédés et innovation             | Angers       | <a href="http://lampa.ensam.eu">lampa.ensam.eu</a>                                | HESAM Université     | saber.elarem@ensam.eu           |
| 109         | Material science, Mechanics and Fluids                                     |                                                                         | Reconstruction of heterogeneous surface residual-stresses in polycrystalline materials from X-ray diffraction measurements                                            | Chedly Braham, Leo Morin                                    | PIMM - Laboratoire Procédés et ingénierie en mécanique et matériaux          | Paris        | <a href="https://pimm.artsetmetiers.fr/">https://pimm.artsetmetiers.fr/</a>       | HESAM Université     | chedly.braham@ensam.eu          |
| 076         | Material science, Mechanics and Fluids, Mathematics and their applications |                                                                         | Multi-scale data-driven modelling of short-fibre reinforced composites for automotive applications                                                                    | Fodil Meraghni, Francis Praud                               | LEM3 - Laboratoire d'étude des microstructures et de mécanique des matériaux | Metz         | <a href="http://www.lem3.fr">http://www.lem3.fr</a>                               | HESAM Université     | fodil.meraghni@ensam.eu         |

# PHD PROPOSALS – CHIMIE PARISTECH 1/2

| File number | Research field                                                                                                                       | Subfield                                     | Titile                                                                                                                                                                        | Advisors                                            | Lab                                                  | Lab location | Lab website                                                                                                                                                 | Doctorate awarded by                       | Contact point                                                                                            |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 003         | Biology, Biophysics and Biochemistry, Chemistry, Physical chemistry and Chemical Engineering, Life and Health Science and Technology | Synthetic Chemistry, Medicinal Chemistry     | Development of Selective Antibacterial Organometallic Drug Candidates                                                                                                         | Gilles Gasser, Kevin Cariou                         | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="http://www.gassergroup.com">http://www.gassergroup.com</a>                                                                                         | Université Paris Sciences et Lettres (PSL) | <a href="mailto:gilles.gasser@chimieparistech.psl.eu">gilles.gasser@chimieparistech.psl.eu</a>           |
| 004         | Biology, Biophysics and Biochemistry, Chemistry, Physical chemistry and Chemical Engineering, Life and Health Science and Technology | Photochemistry, Medicinal Chemistry.         | Photocatalysis in Living Cells with Earth Abundant Metals for Cancer Therapy                                                                                                  | Gilles Gasser                                       | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="http://www.gassergroup.com">http://www.gassergroup.com</a>                                                                                         | Université Paris Sciences et Lettres (PSL) | <a href="mailto:gilles.gasser@chimieparistech.psl.eu">gilles.gasser@chimieparistech.psl.eu</a>           |
| 078         | Biology, Biophysics and Biochemistry, Chemistry, Physical chemistry and Chemical Engineering, Life and Health Science and Technology |                                              | Engineering of Multimodal Magnetic Resonance and optical Imaging using targeted theranostic nanoparticles for diagnosis and therapeutic studies against cancer in preclinics. | Bich-Thuy Doan                                      | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="https://www.chimieparistech.psl.eu/recherche/les-laboratoires/i-clehs/">https://www.chimieparistech.psl.eu/recherche/les-laboratoires/i-clehs/</a> | Université Paris Sciences et Lettres (PSL) | <a href="mailto:bich-thuy.doan@chimieparistech.psl.eu">bich-thuy.doan@chimieparistech.psl.eu</a>         |
| 005         | Chemistry, Physical chemistry and Chemical Engineering                                                                               |                                              | Iodoarene Catalysis through Aerobic Photocatalytic and Electrocatalytic Activations.                                                                                          | Kevin Cariou                                        | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="http://www.gassergroup.com/">http://www.gassergroup.com/</a>                                                                                       | Université Paris Sciences et Lettres (PSL) | <a href="mailto:kevin.cariou@chimieparistech.psl.eu">kevin.cariou@chimieparistech.psl.eu</a>             |
| 023         | Chemistry, Physical chemistry and Chemical Engineering                                                                               | Surface Science, Material Science, Corrosion | Surface treatments of aluminium alloys and corresponding corrosion behavior. Focus on the role of intermetallic particles.                                                    | Jolanta Swiatowska, Frédéric Wiame, Philippe Marcus | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr/le-laboratoire/">https://www.ircp.cnrs.fr/le-laboratoire/</a>                                                             | Université Paris Sciences et Lettres (PSL) | <a href="mailto:jolanta.swiatowska@chimieparistech.psl.eu">jolanta.swiatowska@chimieparistech.psl.eu</a> |
| 027         | Chemistry, Physical chemistry and Chemical Engineering                                                                               | Chemistry and Materials Science              | Synthesis of Biodegradable Polymers from Renewable Resources                                                                                                                  | Regis Gauvin, Christophe Thomas                     | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr/">https://www.ircp.cnrs.fr/</a>                                                                                           | Université Paris Sciences et Lettres (PSL) | <a href="mailto:regis.gauvin@chimieparistech.psl.eu">regis.gauvin@chimieparistech.psl.eu</a>             |
| 029         | Chemistry, Physical chemistry and Chemical Engineering                                                                               | Chemistry and Materials Science              | Vectorizing nanoparticles using biocompatible and biodegradable polymer coating mediated by surface organometallic chemistry                                                  | Regis Gauvin, Christophe Thomas                     | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr/">https://www.ircp.cnrs.fr/</a>                                                                                           | Université Paris Sciences et Lettres (PSL) | <a href="mailto:regis.gauvin@chimieparistech.psl.eu">regis.gauvin@chimieparistech.psl.eu</a>             |
| 031         | Chemistry, Physical chemistry and Chemical Engineering                                                                               | Chemistry and Materials Science              | Synthesis of Biobased Polymers from Renewable Resources: A New Tandem Approach                                                                                                | Christophe Thomas, Regis Gauvin                     | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr/">https://www.ircp.cnrs.fr/</a>                                                                                           | Université Paris Sciences et Lettres (PSL) | <a href="mailto:christophe.thomas@chimieparistech.psl.eu">christophe.thomas@chimieparistech.psl.eu</a>   |
| 033         | Chemistry, Physical chemistry and Chemical Engineering                                                                               | Chemistry and Materials Science              | Smart multi-catalytic systems for the production of biocompatible polymers                                                                                                    | Christophe Thomas, Regis Gauvin                     | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="http://www.ircp.cnrs.fr">http://www.ircp.cnrs.fr</a>                                                                                               | Université Paris Sciences et Lettres (PSL) | <a href="mailto:christophe.thomas@chimieparistech.psl.eu">christophe.thomas@chimieparistech.psl.eu</a>   |
| 047         | Chemistry, Physical chemistry and Chemical Engineering                                                                               |                                              | Environmental behavior of novel multi-principal element alloys containing molybdenum                                                                                          | Dimitri Mercier, Philippe Marcus                    | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr/">https://www.ircp.cnrs.fr/</a>                                                                                           | Université Paris Sciences et Lettres (PSL) | <a href="mailto:dimitri.mercier@chimieparistech.psl.eu">dimitri.mercier@chimieparistech.psl.eu</a>       |
| 059         | Chemistry, Physical chemistry and Chemical Engineering                                                                               |                                              | Mechanochemistry-assisted continuous catalysis in green solvent                                                                                                               | Christophe Len, Carlo Adamo                         | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="https://www.chimieparistech.psl.eu/recherche/les-laboratoires/i-clehs/">https://www.chimieparistech.psl.eu/recherche/les-laboratoires/i-clehs/</a> | Université Paris Sciences et Lettres (PSL) | <a href="mailto:christophe.len@chimieparistech.psl.eu">christophe.len@chimieparistech.psl.eu</a>         |

# PHD PROPOSALS – CHIMIE PARISTECH 2/2

| File number | Research field                                                                                                                                      | Subfield                                                                  | Title                                                                                             | Advisors                                    | Lab                                                  | Lab location | Lab website                                                                                                                                         | Doctorate awarded by                       | Contact point                                                                |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------|
| 110         | Chemistry, Physical chemistry and Chemical Engineering                                                                                              | Organic Chemistry, Catalysis                                              | Asymmetric Catalysis toward BioRelevant Architecturally Novel Natural and Unnatural Products      | Virginie Vidal, Phannarath Phansavath       | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="https://iclehs.fr/">https://iclehs.fr/</a>                                                                                                 | Université Paris Sciences et Lettres (PSL) | virginie.vidal@chimieparistech.psl.eu                                        |
| 071         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes                                                                           |                                                                           | Plastics Conversion in Molten Salts                                                               | Vincent Semetey, Virginie Lair              | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr">https://www.ircp.cnrs.fr</a>                                                                                     | Université Paris Sciences et Lettres (PSL) | vincent.semetey@chimieparistech.psl.eu; virginie.lair@chimieparistech.psl.eu |
| 108         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes                                                                           | Surface Science, Material Science, Battery, Energy Storage and Conversion | Surface reactivity of Mg anode in high-energy density Mg-air battery                              | Jolanta Swiatowska                          | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr/">https://www.ircp.cnrs.fr/</a>                                                                                   | Université Paris Sciences et Lettres (PSL) | jolanta.swiatowska@chimieparistech.psl.eu                                    |
| 030         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes, Environment Science and Technology, Sustainable Development, Geosciences |                                                                           | 2D/3D Perovskites for Stable and High-Efficiency Solar Cells                                      | Thierry Pauporté                            | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.chimieparistech.psl.eu/recherche/laboratoires/ircp/">https://www.chimieparistech.psl.eu/recherche/laboratoires/ircp/</a>       | Université Paris Sciences et Lettres (PSL) | thierry.pauporte@chimieparistech.fr                                          |
| 051         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes, Physics, Optics                                                          | Theoretical and Computational Chemistry                                   | In-silico design of improved electron acceptors for organic photovoltaic applications             | Carlo Adamo                                 | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="http://www.iclehs.fr">http://www.iclehs.fr</a>                                                                                             | Université Paris Sciences et Lettres (PSL) | carlo.adamo@chimieparistech.psl.eu                                           |
| 011         | Chemistry, Physical chemistry and Chemical Engineering, Life and Health Science and Technology                                                      | Theoretical Chemistry                                                     | Design of new photoactivable systems using theoretical approaches                                 | Ilaria Ciofini                              | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="https://iclehs.fr/">https://iclehs.fr/</a>                                                                                                 | Université Paris Sciences et Lettres (PSL) | ilaria.ciofini@chimieparistech.psl.eu                                        |
| 056         | Chemistry, Physical chemistry and Chemical Engineering, Life and Health Science and Technology                                                      |                                                                           | Mechanochemistry-Assisted Continuous Synthesis of Organometallic Complexes of Medicinal Relevance | Christophe Len, Kevin Cariou, Gilles Gasser | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="https://www.chimieparistech.psl.eu/recherche/laboratoires/i-clehs/">https://www.chimieparistech.psl.eu/recherche/laboratoires/i-clehs/</a> | Université Paris Sciences et Lettres (PSL) | christophe.len@chimieparistech.psl.eu                                        |
| 079         | Chemistry, Physical chemistry and Chemical Engineering, Life and Health Science and Technology                                                      |                                                                           | Continuum solvation for extended periodic systems                                                 | Frederic Labat, Carlo Adamo                 | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="https://iclehs.fr">https://iclehs.fr</a>                                                                                                   | Université Paris Sciences et Lettres (PSL) | frederic.labat@chimieparistech.psl.eu                                        |
| 083         | Chemistry, Physical chemistry and Chemical Engineering, Material science, Mechanics and Fluids                                                      |                                                                           | Recycling polyurethane using                                                                      | Vincent Semetey                             | IRCP - Institut de Recherche de Chimie de Paris      | Paris        | <a href="https://www.ircp.cnrs.fr">https://www.ircp.cnrs.fr</a>                                                                                     | Université Paris Sciences et Lettres (PSL) | vincent.semetey@chimieparistech.psl.eu                                       |
| 053         | Chemistry, Physical chemistry and Chemical Engineering, Physics, Optics                                                                             | Theoretical and Computational Chemistry                                   | Modeling Proton Transfer Reactions with Biased Ab-initio Dynamics                                 | Carlo Adamo                                 | I-CLEHS - Institute of chemistry for life and health | Paris        | <a href="http://www.iclehs.fr">http://www.iclehs.fr</a>                                                                                             | Université Paris Sciences et Lettres (PSL) | Carlo, Adamo, carlo.adamo@chimieparistech.psl.eu                             |



# PHD PROPOSALS – ECOLE DES PONTS PARISTECH

| File number | Research field                                                                                                   | Subfield                         | Titile                                                                                                             | Advisors                              | Lab                                                                                    | Lab location     | Lab website                                                       | Doctorate awarded by      | Contact point                                        |
|-------------|------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------|---------------------------|------------------------------------------------------|
| 084         | Environment Science and Technology, Sustainable Development, Geosciences                                         |                                  | Spatio-temporal variability of rainfall drop size distribution across scales: retrieval, characterization and uses | Ioulia Tchiguirinskaia, Auguste Gires | HM & Co - Hydrologie Météorologie et Complexité                                        | Champs-sur-Marne | hmco.enpc.fr/                                                     | Ecole des Ponts ParisTech | ioulia.tchiguirinskai@enpc.fr; auguste.gires@enpc.fr |
| 096         | Environment Science and Technology, Sustainable Development, Geosciences                                         | Hydrology                        | Optimal implementation of Nature-Based Solutions to mitigate Urban Heat Islands                                    | Pierre-Antoine Versini                | HM & Co - Hydrologie Météorologie et Complexité                                        | Champs-sur-Marne | <a href="https://hmco.enpc.fr/">https://hmco.enpc.fr/</a>         | Ecole des Ponts ParisTech | pierre-antoine.versini@enpc.fr                       |
| 097         | Environment Science and Technology, Sustainable Development, Geosciences                                         |                                  | Develop an innovative framework to assess the environmental performances of a new train station over time          | Pierre-Antoine Versini                | HM & Co - Hydrologie Météorologie et Complexité                                        | Champs-sur-Marne | <a href="https://hmco.enpc.fr/">https://hmco.enpc.fr/</a>         | Ecole des Ponts ParisTech | pierre-antoine.versini@enpc.fr                       |
| 009         | Environment Science and Technology, Sustainable Development, Geosciences, Material science, Mechanics and Fluids | Civil Engineering - Construction | Controlling hygrothermics of biobased construction material                                                        | Philippe Coussot, Patrick Huber       | Laboratoire NAVIER (mécanique, physique des matériaux et des structures, géotechnique) | Champs-sur-Marne | <a href="https://navier-lab.fr/en/">https://navier-lab.fr/en/</a> | Ecole des Ponts ParisTech | philippe.coussot@univ-eiffel.fr                      |
| 010         | Material science, Mechanics and Fluids                                                                           |                                  | Gas transfer in the compacted bentonite-based materials                                                            | Yujun Cui                             | Laboratoire NAVIER (mécanique, physique des matériaux et des structures, géotechnique) | Champs-sur-Marne | <a href="https://navier-lab.fr/">https://navier-lab.fr/</a>       | Ecole des Ponts ParisTech | yu-jun.cui@enpc.fr                                   |

# PHD PROPOSALS – ESPCI PARIS – PSL 1/2

| File number | Research field                                                                                                                     | Subfield                             | Titile                                                                                                 | Advisors                                               | Lab                                                             | Lab location | Lab website                                                                                                                       | Doctorate awarded by                       | Contact point                                                              |
|-------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------|
| 111         | Biology, Biophysics and Biochemistry, Life and Health Science and Technology                                                       | Neurosciences, Neuropathology        | Interactions between the circadian and dopaminergic systems in Parkinson disease studied in Drosophila | Birman Serge                                           | Plasticité du cerveau                                           | Paris        | <a href="https://www.bio.espci.fr/-Home-">https://www.bio.espci.fr/-Home-</a>                                                     | Université Paris Sciences et Lettres (PSL) | serge.birman@espci.fr                                                      |
| 049         | Biology, Biophysics and Biochemistry, Material science, Mechanics and Fluids, Physics, Optics                                      | Theoretical biophysics               | A mechano-chemical model of hydra morphogenesis                                                        | Philippe Marcq                                         | Physique et mécanique des Milieux Hétérogènes                   | Paris        | <a href="https://www.pmmh.espci.fr/">https://www.pmmh.espci.fr/</a>                                                               | Université Paris Sciences et Lettres (PSL) | philippe.marcq@espci.fr                                                    |
| 001         | Chemistry, Physical chemistry and Chemical Engineering                                                                             |                                      | Asymmetric multicomponent reactions in continuous-flow                                                 | Benjamin Laroche                                       | C3M - Chimie Moléculaire, Macromoléculaire, et Matériaux        | Paris        | <a href="https://www.cmc.espci.fr/Dr-Benjamin-Laroche">https://www.cmc.espci.fr/Dr-Benjamin-Laroche</a>                           | Université Paris Sciences et Lettres (PSL) | benjamin.laroche@espci.fr                                                  |
| 028         | Chemistry, Physical chemistry and Chemical Engineering                                                                             |                                      | Using good vibrations to decrease the viscosity of non brownian suspensions.                           | Annie Colin                                            | CBI - Chimie, Biologie et Innovation                            | Paris        | <a href="https://www.cbi.espci.fr/accueil-22/">https://www.cbi.espci.fr/accueil-22/</a>                                           | Université Paris Sciences et Lettres (PSL) | annie.colin@espci.fr                                                       |
| 008         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes, Material science, Mechanics and Fluids                  |                                      | Efficient and Stable Semi-Transparent Perovskite Solar Cells                                           | Zhuoying Chen, Lionel Aigouy                           | LPEM - Laboratoire Physique et d'études des matériaux           | Paris        | <a href="https://www.lpem.espci.fr">https://www.lpem.espci.fr</a>                                                                 | Université Paris Sciences et Lettres (PSL) | zhuoying.chen@espci.fr;<br>lionel.aigouy@espci.fr                          |
| 042         | Chemistry, Physical chemistry and Chemical Engineering, Energy, Processes, Material science, Mechanics and Fluids, Physics, Optics |                                      | Nanoparticles, Nanowire, and Nanosheets of Hybrid Perovskite Halides: From Synthesis to Applications   | Zhuoying Chen, Alexei Chepelianskii, Miguel Monteverde | LPEM - Laboratoire Physique et d'études des matériaux           | Paris        | <a href="https://www.lpem.espci.fr">https://www.lpem.espci.fr</a>                                                                 | Université Paris Sciences et Lettres (PSL) | zhuoying.chen@espci.fr;<br>alexei.chepelianskii@universite-paris-saclay.fr |
| 022         | Chemistry, Physical chemistry and Chemical Engineering, Material science, Mechanics and Fluids, Physics, Optics                    |                                      | Active Colloidal Gels                                                                                  | Olivier Dauchot                                        | GULLIVER - Voyages expérimentaux et théoriques en matière molle | Paris        | <a href="https://www.gulliver.espci.fr">https://www.gulliver.espci.fr</a>                                                         | Université Paris Sciences et Lettres (PSL) | olivier.dauchot@espci.fr                                                   |
| 025         | Energy, Processes, Material science, Mechanics and Fluids                                                                          |                                      | Entrance effects in osmotic nanofluidics for Blue Energy                                               | Corentin Tréguët, Annie Colin                          | CBI - Chimie, Biologie et Innovation                            | Paris        | <a href="http://www.cbi.espci.fr/accueil-22/">http://www.cbi.espci.fr/accueil-22/</a>                                             | Université Paris Sciences et Lettres (PSL) | annie.colin@espci.fr                                                       |
| 007         | Material science, Mechanics and Fluids, Physics, Optics                                                                            | condensed matter physics, spintronic | Novel two dimensional Rashba materials for spintronics.                                                | Nicolas Bergeal, Sergio Vlaic                          | LPEM - Laboratoire Physique et d'études des matériaux           | Paris        | <a href="https://www.lpem.espci.fr/spip.php?rubrique45&amp;lang=fr">https://www.lpem.espci.fr/spip.php?rubrique45&amp;lang=fr</a> | Université Paris Sciences et Lettres (PSL) | sergio.vlaic@espci.fr                                                      |
| 041         | Material science, Mechanics and Fluids, Physics, Optics                                                                            | Condensed matter physics             | Hydrodynamics of electrons and phonons in bulk semimetals                                              | Kamran Behnia                                          | LPEM - Laboratoire Physique et d'études des matériaux           | Paris        | <a href="https://www.lpem.espci.fr/spip.php?rubrique4">https://www.lpem.espci.fr/spip.php?rubrique4</a>                           | Université Paris Sciences et Lettres (PSL) | kamran.behnia@gmail.com                                                    |

# PHD PROPOSALS – ESPCI PARIS – PSL 2/2

| File number | Research field                                          | Subfield                                                                                | Titile                                                                       | Advisors                         | Lab                                                             | Lab location | Lab website                                                                                                       | Doctorate awarded by                       | Contact point              |
|-------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------|
| 058         | Material science, Mechanics and Fluids, Physics, Optics |                                                                                         | Bad metals and soft mode in the quantum paraelectrics                        | Benoit Fauqué, Philippe Bourges  | LPEM - Laboratoire Physique et d'études des matériaux           | Paris        | <a href="https://www.lpem.espci.fr/spip.php?rubrique4">https://www.lpem.espci.fr/spip.php?rubrique4</a>           | Université Paris Sciences et Lettres (PSL) | benoit.fauque@espci.fr     |
| 060         | Material science, Mechanics and Fluids, Physics, Optics |                                                                                         | Electronic and Thermoelectrical properties of dilute metals                  | Benoit Fauqué, Kamran Behnia     | LPEM - Laboratoire Physique et d'études des matériaux           |              | <a href="https://www.lpem.espci.fr/spip.php?rubrique4">https://www.lpem.espci.fr/spip.php?rubrique4</a>           | Université Paris Sciences et Lettres (PSL) | benoit.fauque@espci.fr     |
| 087         | Material science, Mechanics and Fluids, Physics, Optics | Applied Physics, Physical acoustics                                                     | ULTRASONIC IMAGING OF SOFT GRANULAR MATERIALS AND BIOMEDICAL APPLICATIONS    | Xiaoping Jia, Jean-Luc Gennisson | Institut Langevin                                               | Paris        | <a href="https://www.institut-langevin.espci.fr">https://www.institut-langevin.espci.fr</a>                       | Université Paris Sciences et Lettres (PSL) | xiaoping.jia@espci.fr      |
| 091         | Material science, Mechanics and Fluids, Physics, Optics |                                                                                         | Active liquid crystals: Controlling active flows through "smart confinement" | Teresa Lopez-Leon                | GULLIVER - Voyages expérimentaux et théoriques en matière molle | Paris        | <a href="https://www.gulliver.espci.fr/">https://www.gulliver.espci.fr/</a>                                       | Université Paris Sciences et Lettres (PSL) | teresa.lopez-leon@espci.fr |
| 104         | Material science, Mechanics and Fluids, Physics, Optics | Nanomechanics, Interfaces, Ionic Double Layer                                           | Nano-Rheology of Charged Solid/Liquid Interfaces                             | Jean Comtet                      | SIMM - Sciences et ingénierie de la matière molle               | Paris        | <a href="https://www.simm.espci.fr/-Home-.html">https://www.simm.espci.fr/-Home-.html</a>                         | Université Paris Sciences et Lettres (PSL) | jean.comtet@espci.fr       |
| 105         | Material science, Mechanics and Fluids, Physics, Optics | Solid/Liquid Interfaces, Single Molecule Localization Microscopy, 2D materials, Defects | Ionic transport at solid/liquid interfaces at the single charge scale        | Jean Comtet                      | SIMM - Sciences et ingénierie de la matière molle               | Paris        | <a href="https://www.simm.espci.fr/-Home-.html">https://www.simm.espci.fr/-Home-.html</a>                         | Université Paris Sciences et Lettres (PSL) | jean.comtet@espci.fr       |
| 107         | Material science, Mechanics and Fluids, Physics, Optics | Polymer, Interfaces, Single Molecule Techniques                                         | Single Molecule Investigation of Polymer Chain Dynamics at Interfaces        | Jean Comtet                      | SIMM - Sciences et ingénierie de la matière molle               | Paris        | <a href="https://www.simm.espci.fr/-Home-.html">https://www.simm.espci.fr/-Home-.html</a>                         | Université Paris Sciences et Lettres (PSL) | jean.comtet@espci.fr       |
| 024         | Physics, Optics                                         | Mechanical and Electronic Engineering                                                   | Morphological Swarm Robotics                                                 | Olivier Dauchot                  | GULLIVER - Voyages expérimentaux et théoriques en matière molle | Paris        | <a href="https://www.gulliver.espci.fr">https://www.gulliver.espci.fr</a>                                         | Université Paris Sciences et Lettres (PSL) | olivier.dauchot@espci.fr   |
| 088         | Physics, Optics                                         |                                                                                         | Physics and algorithms for molecular modeling                                | Anthony Maggs                    | GULLIVER - Voyages expérimentaux et théoriques en matière molle | Paris        | <a href="https://www.gulliver.espci.fr/?-home-&amp;lang=en">https://www.gulliver.espci.fr/?-home-&amp;lang=en</a> | Université Paris Sciences et Lettres (PSL) | anthony.maggs@espci.fr     |

# PHD PROPOSALS – INSTITUT D’OPTIQUE GRADUATE SCHOOL

| File number | Research field                                                        | Subfield                      | Title                                                                                                                           | Advisors                             | Lab                                                      | Lab location | Lab website                                                                                                                                 | Doctorate awarded by    | Contact point                         |
|-------------|-----------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------|
| 057         | Biology, Biophysics and Biochemistry, Physics, Optics                 |                               | Polarization sensitive single particle tracking and super-resolution microscopy in the near-infrared for brain imaging          | Laurent Cagnet                       | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://www.lp2n.institutoptique.fr/en/teams/nanobiomicroscopy">https://www.lp2n.institutoptique.fr/en/teams/nanobiomicroscopy</a> | Université de Bordeaux  | laurent.cagnet@u-bordeaux.fr          |
| 069         | Information and Communication Science and Technology, Physics, Optics | Image processing - Microscopy | Improving super-resolved localization microscopes (PALM) in deep and heterogeneous samples with co-designed optimal phase masks | François Goudail                     | Laboratoire Charles Fabry                                | Palaiseau    | <a href="https://www.lcf.institutoptique.fr/">https://www.lcf.institutoptique.fr/</a>                                                       | Université Paris-Saclay | francois.goudail@institutoptique.fr   |
| 002         | Physics, Optics                                                       |                               | Production of new striking visual appearance with disordered metasurfaces composed of random arrays of resonant nanoparticles.  | Philippe Lalanne                     | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://www.lp2n.institutoptique.fr/">https://www.lp2n.institutoptique.fr/</a>                                                     | Université de Bordeaux  | Philippe.lalanne@institutoptique.fr   |
| 006         | Physics, Optics                                                       |                               | Dissipative strong coupling with non-Hermitian nanoresonators.                                                                  | Philippe Lalanne                     | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://www.lp2n.institutoptique.fr/">https://www.lp2n.institutoptique.fr/</a>                                                     | Université de Bordeaux  | Philippe.lalanne@institutoptique.fr   |
| 020         | Physics, Optics                                                       |                               | High-power versatile GHz frequency combs for spectral and temporal domains applications                                         | Eric Cormier, Giorgio Santarelli     | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://www.lp2n.institutoptique.fr/en">https://www.lp2n.institutoptique.fr/en</a>                                                 | Université de Bordeaux  | giorgio.santarelli@institutoptique.fr |
| 070         | Physics, Optics                                                       |                               | High sensitive Atom Interferometry using multi-photon interrogation in an optical cavity                                        | Benjamin Canuel, Philippe Bouyer     | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://www.lp2n.institutoptique.fr/">https://www.lp2n.institutoptique.fr/</a>                                                     | Université de Bordeaux  | Benjamin.canuel@institutoptique.fr    |
| 072         | Physics, Optics                                                       | lasers                        | development of UV laser sources for applications in quantum physics                                                             | Adèle Hilico, Giorgio Santarelli     | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://www.lp2n.institutoptique.fr/">https://www.lp2n.institutoptique.fr/</a>                                                     | Université de Bordeaux  | adele.hilico@institutoptique.fr       |
| 090         | Physics, Optics                                                       | Quantum optics                | Coherent dipole-dipole coupling of quantum emitters and manipulation of their degree of entanglement                            | Brahim Lounis, Jean-Baptiste Trebbia | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://sites.google.com/site/bordeauxnanophotonicsgroup/home">https://sites.google.com/site/bordeauxnanophotonicsgroup/home</a>   | Université de Bordeaux  | brahim.lounis@u-bordeaux.fr           |
| 092         | Physics, Optics                                                       | Nanophysics                   | Exploring the optical properties of perovskite single nanocrystals and superlattices                                            | Brahim Lounis, Philippe Tamarat      | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://sites.google.com/site/bordeauxnanophotonicsgroup/home">https://sites.google.com/site/bordeauxnanophotonicsgroup/home</a>   | Université de Bordeaux  | brahim.lounis@u-bordeaux.fr           |
| 093         | Physics, Optics                                                       | Superconductivity             | Fast Josephson-junction control by optical manipulation of a flux quantum                                                       | Brahim Lounis, Philippe Tamarat      | LP2N - Laboratoire Photonique, numérique et nanosciences | Bordeaux     | <a href="https://sites.google.com/site/bordeauxnanophotonicsgroup/home">https://sites.google.com/site/bordeauxnanophotonicsgroup/home</a>   | Université de Bordeaux  | brahim.lounis@u-bordeaux.fr           |

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