



Ecole Centrale de Lyon

Engineering and innovating for the future



ÉCOLE
CENTRALE LYON

Perfect setting in Lyon and the Auvergne Rhône-Alpes region



- Rhône-Alpes is France's **second** most important region, economically
- Lyon is just **2 hours** from **Paris** by the TGV high speed train,
- **90mn** from the **Mediterranean coast**, And
- **90mn** from the **Alps**
- The Rhône-Alpes region has no less than **216 ski resorts**

Centrale Lyon : A genuine campus life

School founded : 1857

- **16** ha campus in the suburbs to the west of Lyon
 - all basic services on-campus :
Board and Accommodation Student Union, and a comprehensive library
 - high-quality sports facilities : athletics track, tennis courts, gym...
 - active student life, with 60 clubs covering a wide range of interests



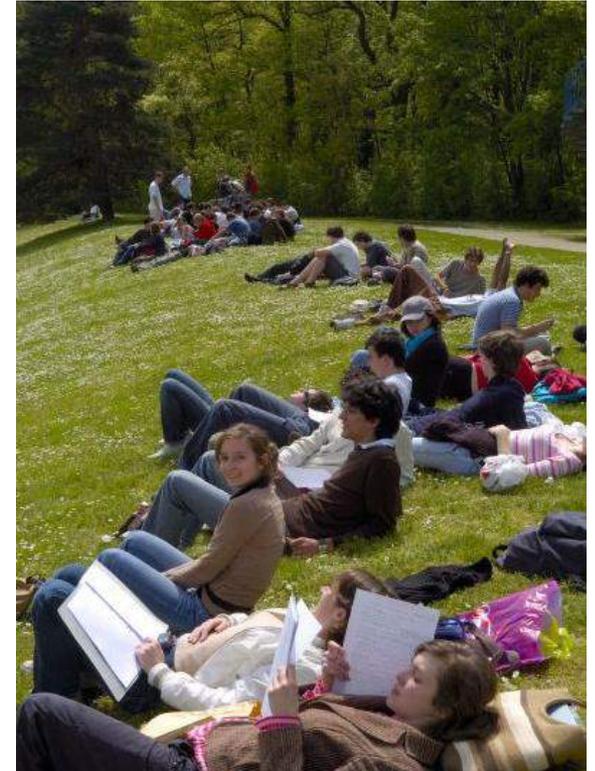
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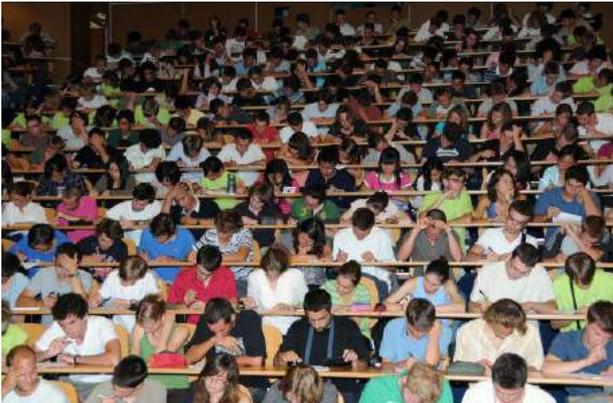
A long culture in engineering education

A public school founded in 1857

- **1550** engineering students in training (1/4 female) 
- **200** PhD students , **235** masters students
- **400** staff, 
 - **120** academics **50** full researchers
- **24%** foreign students from more than **50** different nationalities on the campus 
- **12000** alumni throughout the world 



Generalist Engineering programme to run complex innovative projects at the highest level



- Science, core subject at Centrale Lyon
- Professional and personal skills development
- Experience of teamwork and project work
- Specialization// professional track
- International mobility IN/OUT
- Innovation and Entrepreneuriat sensibilization and training
- Innovation-based Project learning

Highly competitive student selection Top 3%

Challenges of the XXIst century and Innovation-based Project learning

- Innovation-based Project learning
MOOCs, learning lab - Fab lab, design
thinking, flipped classroom...



I'Etudiant

2016

1st International Partnerships

1st Research activities

2nd Academic Excellence

I'Etudiant

2017 - 2018

5th

among 210 Engineering School
for all thematic





**Global ranking 2016
Engineering 2017 301-400**



TimesHigherEducation
@timeshighered



Which universities are the most innovative? Our 4 innovation indicators reveal world's best:
owl.li/R8KhE pic.twitter.com/mlm1dHKn2Z

05:38 - 20 août 2015

5th in the World

Industry collaboration

Rank	Institution	Country
1	Southwest Petroleum University	China
2	China University of Petroleum	China
3	Universities Space Research Association	US
4	Wright-Patterson Air Force Base	US
5	École Centrale de Lyon	France
6	Jawaharlal Nehru Technological University Hyderabad	India
7	Eindhoven University of Technology	Netherlands
8	Bundeswehr University Munich	Germany
9	Toyota Technological Institute	Japan
10	Musashi Institute of Technology	Japan
11	Tampere University of Technology	Finland
12	Aalto University	Finland
13	Daqing Petroleum Institute	China
14	Research Organization of Information and Systems (National Institute of Informatics)	Japan
15	Mines ParisTech	France



6th in the World for co-publications with industrial partners companies - Knowledge transfer **2016**

Co-publications with companies

International Rankings



Only 3 Universities in Engineering
In both



Shanghai Ranking 2016

in Mechanical Engineering (101-150)

3rd French University

In Materials Science Engineering (201-300)

+ **Shanghai Ranking 2017**

In Mathematics 2018 (51-75)

9th French University



**Mechanical
Engineering**



QS TOP UNIVERSITIES University Search

In Mechanical, Aeronautical & Manufacturing
2nd French Universities 2016

International Rankings

In the Engineering Field

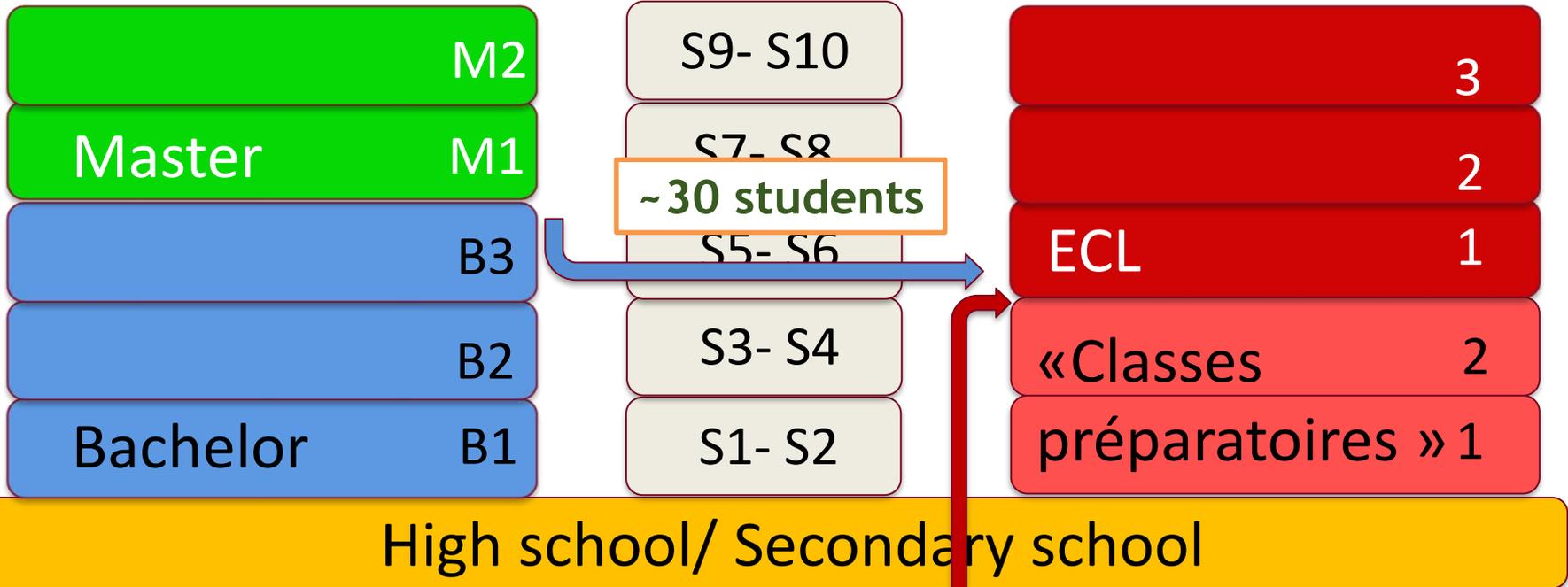


Only 3 French Universities

French University system
In the Bologna system

60
International
students

« Grandes Ecoles »
(Engineering Schools)



Studying at Centrale Lyon

PhD Degree

PhD 3

200 students

PhD 2

PhD 1

Engineering degree

Master's degree

M2

ECL3

ECL3*

M1

ECL2

ECL2*

ECL1

ECL1*

In alternance with company
75 students

Engineering Science
ECL

* Energy Technologies

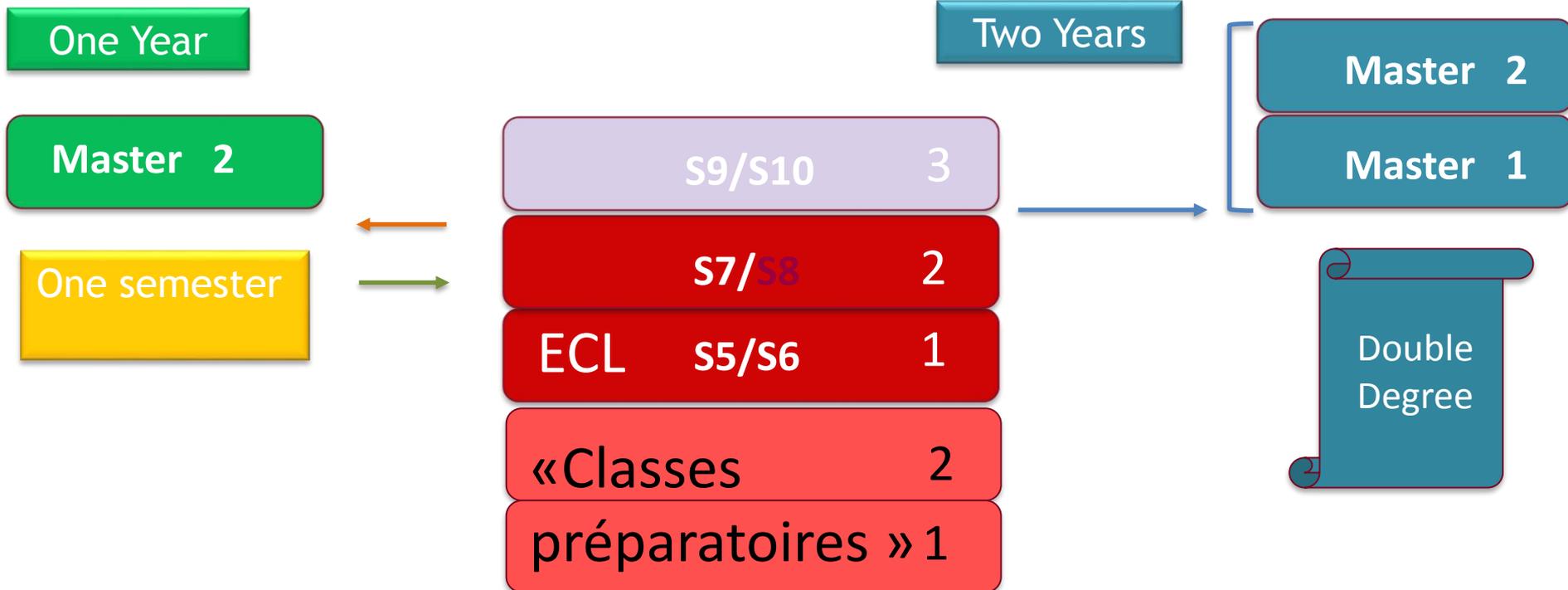
2 years after the high school certificate

1475 students

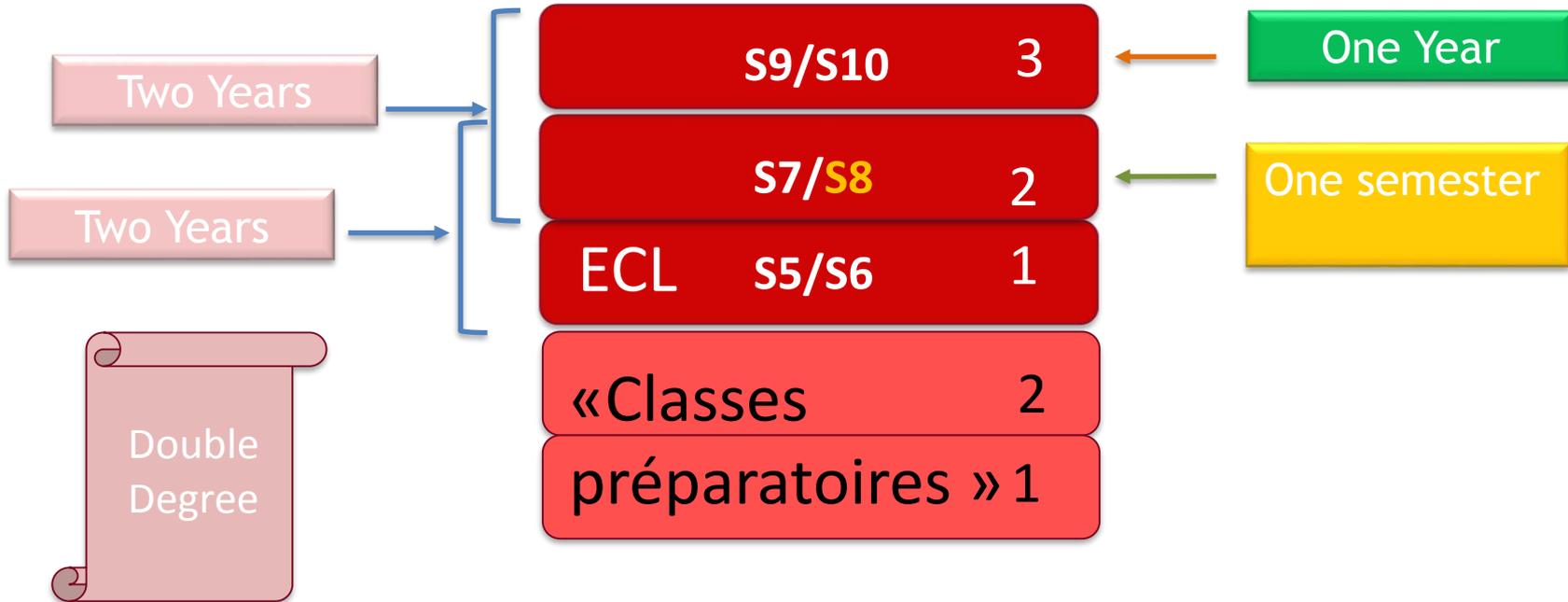
3 years of bachelor after the high school certificate

17 different masters with 3 in English
« Nanoscale Engineering »
« Aerospace engineering »
« Acoustics »
235 students

Compulsary for all our students in the Engineering program



Mobility In International Students



Most of the courses are taught in french
Agreement of reciprocity no extra fees

Mobility In International Students

Master 2

Master 1



International masters taught in English

« Nanoscale Engineering »

« Aerospace Engineering »

« Acoustics »

New programmes

A semester (Feb- July) 30 ECTS

**4 Specialization
courses**

**Advanced
Research
project**

Complementary skills

New programmes

A 3 month term (Feb- April) 20 ECTS

**2 Specialization
courses**

**Design or research
project**

Complementary skills

« A la carte » courses

Research, one of Centrale Lyon's strongest points

6 CNRS laboratories (national scientific research center) with international Impact and Reputation

- Laboratory of Fluid Mechanics and Acoustics (LMFA)
- Laboratory of Tribology and Systems Dynamics (LTDS)
- Lyon Nanotechnology Institute (INL)
- Ampère Laboratory (Electrical Engineering)
- Camille Jordan Institute (ICJ : Mathematics)
- Lyon Research Center for Images and Intelligent Information Systems (LIRIS)



160 researchers
85 research engineers
200 PhD students
50 Post docs

Research, one of Centrale Lyon's strongest points

Major research priorities

- Nanotechnologies, nanomaterials
- Transports (ground and aeronautical)
- Energy
- Environment (pollution, noise, industrial risk)
- Bio-engineering

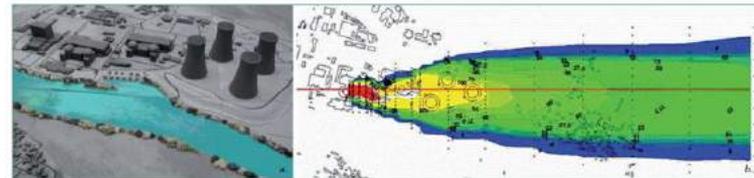
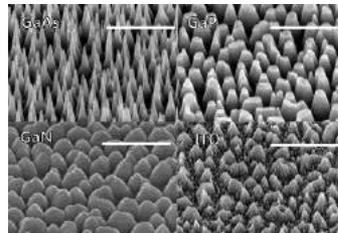
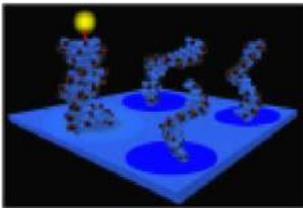
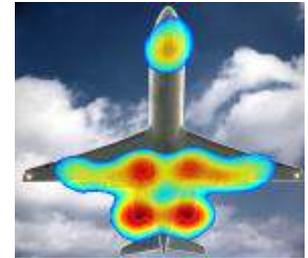


Figure 1 : Expérimentation en soufflerie – a : modèle physique de la centrale ; b : champ d'activité mesuré au sol.



Research, one of Centrale Lyon's strongest points

➤ A wide variety of large research installations:

- Vibrations
- Tribometry
- Micro / Nano / Bio Technology
- High voltage test rig
- Electric / magnetic compatibility
- High-speed Turbomachines
- Anechoic chamber
- Environmental wind-tunnel



Projects funded by the Initiative d'Excellence Programme

- Phare (turbo-machinery)
- IVTV (aging of human body, skin, bones...)
- Manutech (surfaces)
- EQUIP@MESO (intensive calculations)
- 7 labEx



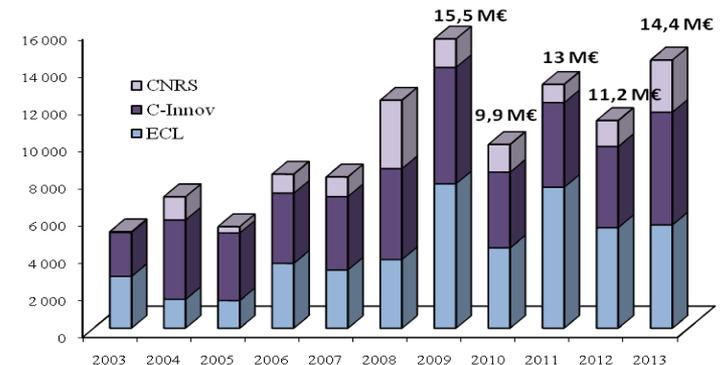
Main partners :



AIRBUS, ALSTOM, CEA, CNES, DASSAULT AVIATION, DASSAULT SYSTEMS, DCN, EADS, EUROCOPTER, EDF, LAFARGE, MICHELIN, PSA, RENAULT, SAINT-GOBAIN, SNCF, SAFRAN, SNECMA, ST MICROELECTRONICS, ANDRITZ, IHI, THALES, THOMSON MULTIMEDIA, TOTAL, NAVAL Group.....

450 industrial contracts / year

4 M€ directly with companies
1 M€ Europe
14 M€ including funding agencies
(ANR...)

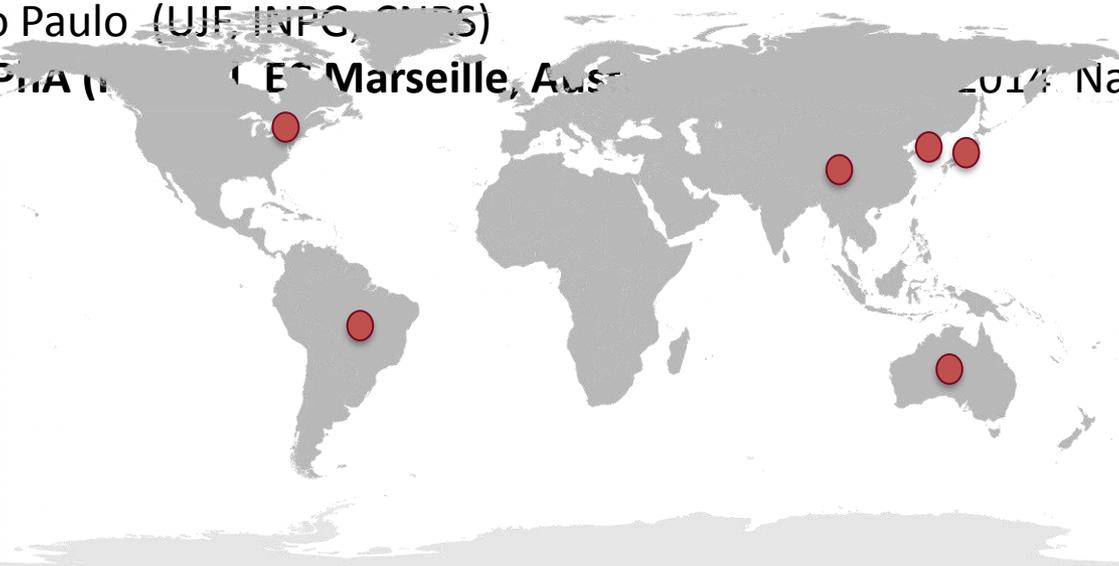


International Research

LIA = Laboratoire International Associé (Associated International Lab)

UMI = Unité Mixte internationale (International Lab)

- LIA Corea (with UJF, CNRS) 2006
Photonics
- LIA ELyT Lab. Tohoku (INSA, Lyon 1, CNRS) 2008 (UMI ElytMax 2016)
Tribology
- LIA LN2 Sherbrooke (INSA, Lyon 1, CNRS, Grenoble) 2008 (UMI 2011) Nanotechnology
- LIA Beijing BUAA (Ecoles Centrales, CNRS) 2010 Mechanics
- LIA Sao Paulo (UJF, INPC, CNRS) 2011 Electrotechn
- LIA ALPHA (UJF, EC Marseille, Aus) 2014 Nanophotonics





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