

Doctoral School no. 353 “Engineering sciences”

Management staff

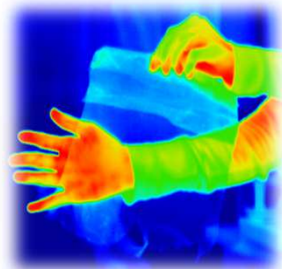
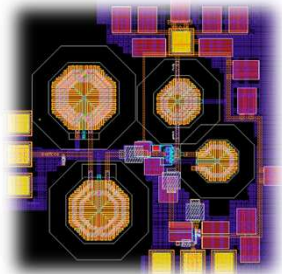
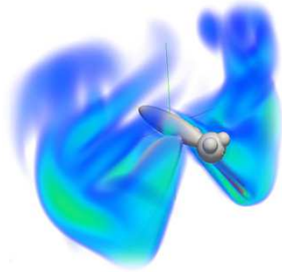
- Director: Eric SERRE
- Deputy director: Michel BENOÎT

Administrative staff

- Pascal CAMPION

<https://ecole-doctorale-353.univ-amu.fr/>





Aix-Marseille University & Doctoral Education

Aix-Marseille University (AMU)

Key figures

- **Largest francophone** University over the world
- **Ranked 101–150** in Academic Ranking of World Universities (47 in Mathematics, 76–100 in Physics)
- **Hosting and educating 72 000 students** (10 000 from abroad) over 5 campuses
- **Offering all academic disciplines of study** (19 faculties, Schools and Institutes)
- **8 000 members** (faculty and staff)
- **117 research units** linked to biggest research institutions (CNRS, INSERM, IRD, INRA, CEA, etc.)



Key figures

- **12 Doctoral Schools** covering all disciplines
- **3 650 PhD students**, 49% female and 51% male
- **2 400 certified research supervisors (HDR)**
- **More than 800 new** enrolled PhD students each year
- **700 doctorate degrees** awarded each year
- **33% of international PhD students**
- **8% of PhD students in international co-supervision (cotutelle)**

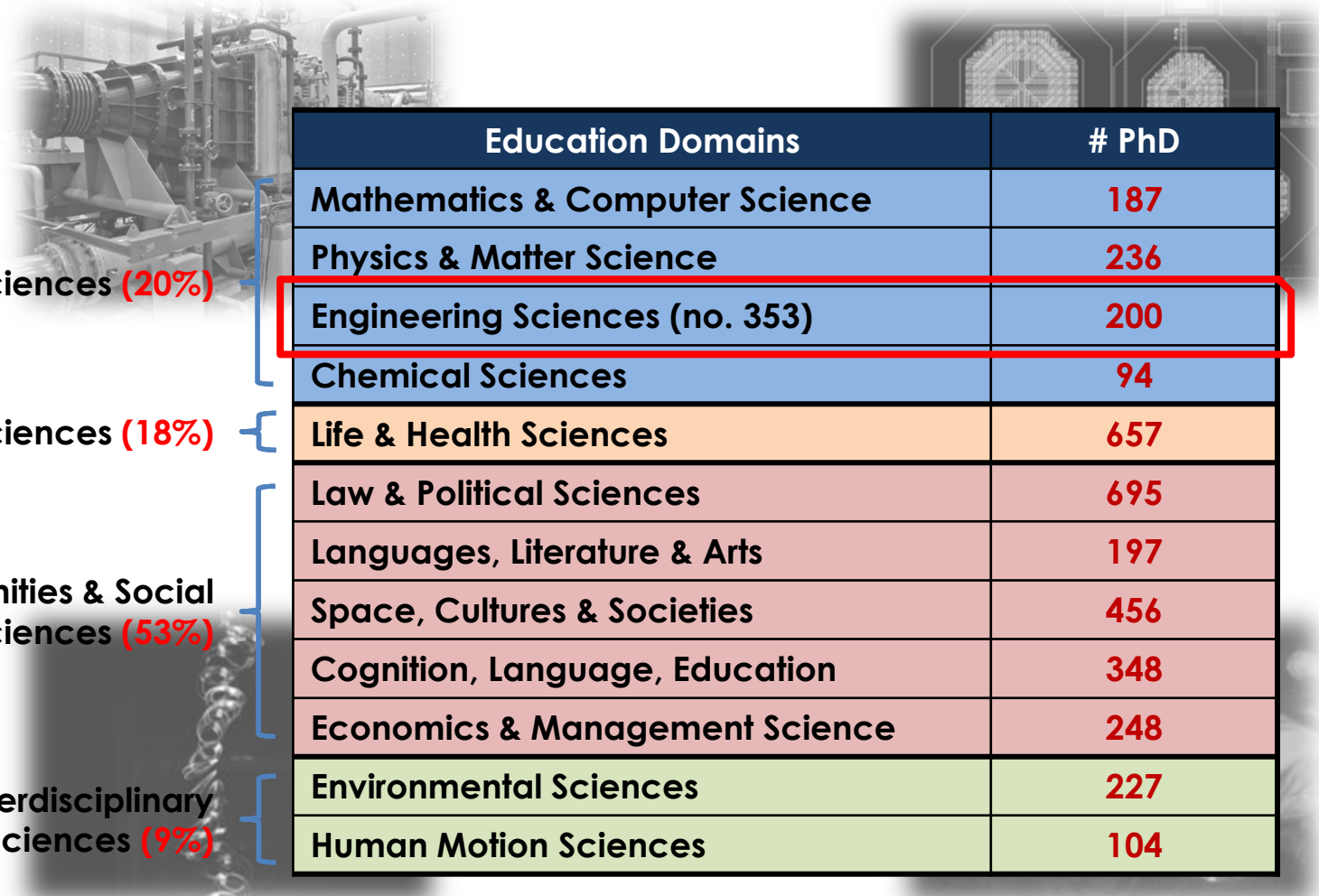


Supra-organization for...

- **Implementing PhD thesis Charter**
 - Common and formal definition of principles and conditions of the doctoral education
- **Promoting inter-disciplinarity**
 - 6 AMU doctoral grants/year reserved for interdisciplinary PhD theses (2 Doc. Schools)
- **Strengthening international visibility**
 - Grants from A*MIDEX Excellence Academy PhD Collegium (27 grants in 2014) for emphasizing visibility of doctoral education
- **Organizing professional training sessions**
 - Broaden the field of PhD students skills and prepare their professional integration



3 650 PhD students in 12 doctoral schools

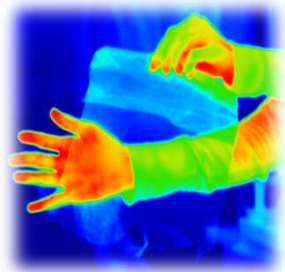
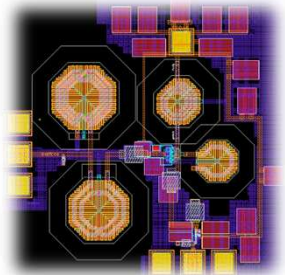
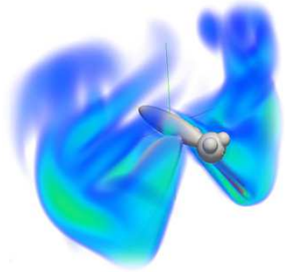


	Education Domains	# PhD
Hard Sciences (20%)	Mathematics & Computer Science	187
	Physics & Matter Science	236
	Engineering Sciences (no. 353)	200
	Chemical Sciences	94
Life Sciences (18%)	Life & Health Sciences	657
	Law & Political Sciences	695
Humanities & Social Sciences (53%)	Languages, Literature & Arts	197
	Space, Cultures & Societies	456
	Cognition, Language, Education	348
	Economics & Management Science	248
	Environmental Sciences	227
Interdisciplinary Sciences (9%)	Human Motion Sciences	104

Rate of funded PhD theses

- **64% of PhD students are granted**, 20% are salaried and 16% have no funding
- **PhD thesis funding**
 - Universities/HE&R Ministry: 35.8%
 - Funding for foreign PhD students: 17.8%
 - Other funding (region, CIFRE, etc.): 46.5%





Presentation of doctoral school no. 353

Engineering Sciences: Mechanics, Physics, Micro and Nanoelectronics

- **PhD students enrolled in Aix-Marseille University (AMU) and Ecole Centrale de Marseille (ECM)** and performing their research work in the disciplinary areas of engineering sciences
- **Main research areas:** acoustics, energy, heat, combustion, fluid mechanics, civil engineering, solid mechanics and micro and nanoelectronics
- Doctoral school no. 353 is a founding member of the **National Doctoral Network on Engineering Sciences**, REDOC-SPI



Key figures

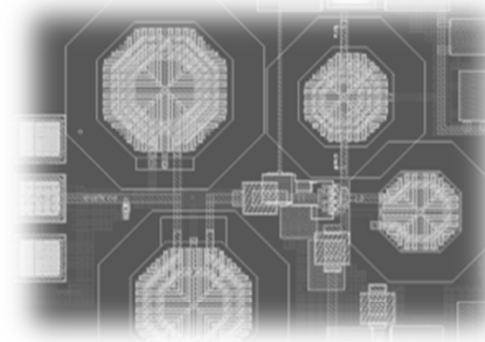
- 200 PhD students
- 323 permanent staff for PhD supervision (174 certified supervisors)
- 42% of foreign students
- 5 founder laboratories and 4 attached organisms

Main Laboratories	Additional Research Teams
UMR 7334 — IM2NP	CEA, Cadarache
UMR 7342 — IRPHE	IRSTEA, Aix-en-Provence
UMR 7343 — IUSTI	IRSN, Cadarache
UMR 7340 — M2P2	Centre de Recherche de l'Ecole de l'Air, Salon
UPR 7051 — LMA	

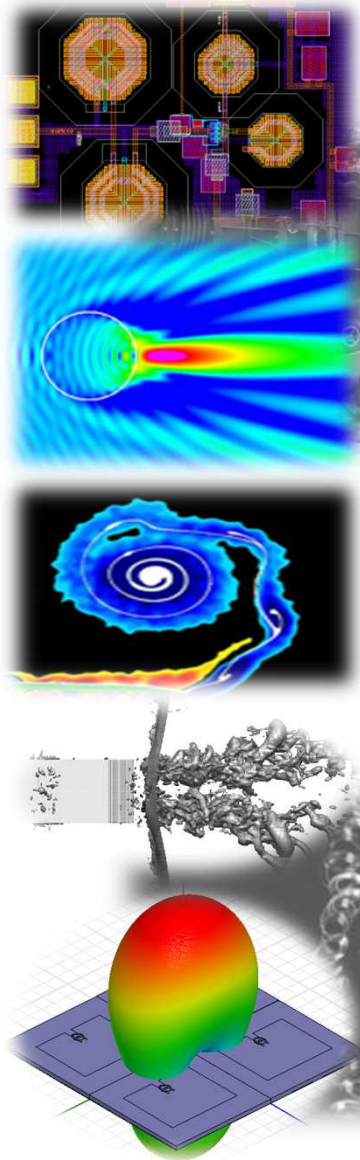
Doctorate specialties

6 specialties for PhD diploma

- Acoustics
- Solid mechanics
- Physics and mechanics of fluids
- Energetics
- Civil engineering and architecture
- Micro and nanoelectronics



Fields of renown expertise

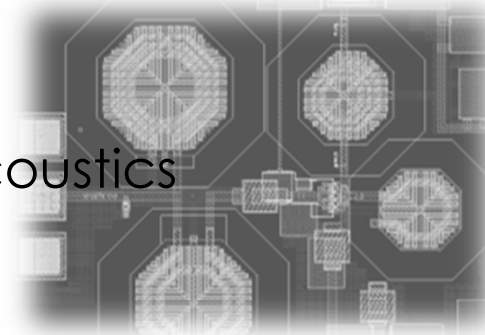


- Complex fluids
- Instabilities and turbulence
- Acoustic and vibrations
- Signal processing and imaging
- Mass and heat transfer
- Energetics
- Control and monitoring of complex systems
- Multi-scales effects and scale changes
- Modeling and numerical simulation
- Electronic devices and RFID systems
- Sensors, non-volatile memories, PV cells
- Etc.

Facilities

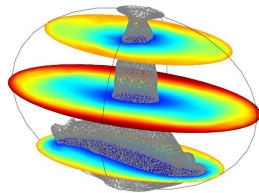


- Subsonic and hypersonic blowers
- Anechoic rooms
- Pool for submarine acoustics
- Shock tubes
- Combustion chambers
- Electronic device characterization tools
- Wind tunnels and water tunnels
- Supercomputers
- Rotating tables
- Mechanical testing
- Etc.



Focus on “flows & transfers” platforms

Platforms dedicated to fluid mechanics & heat and mass transfers



High & low speed wind tunnels: turbulence, fluid structures interactions, aerodynamics, vortices...

Numerical simulation: Simulations of transitional and turbulent flows and heat transfers (DNS, LES, clusters...)

Combustion rigs: instabilities and turbulence of flames, combustion channels

Rotating facilities: experimental simulations of turbomachines, geophysical flows

Bio-reactors and bio-mechanical facilities: filtering membranes, cardio-vascular flows

Water channels: waves, tsunami or rogue waves, fluid structures interactions

Tokamak tore supra (CEA-IRFM): plasma physics

Focus on “Micro & nanoelectronics” platforms



Platforms dedicated to micro & nanoelectronics

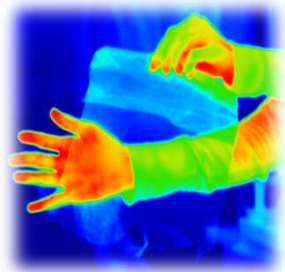
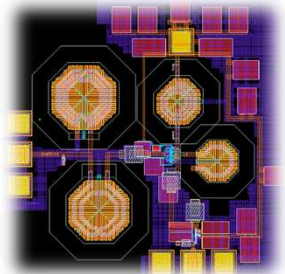
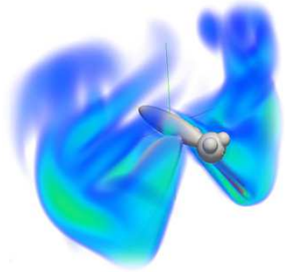
Electrical characterization: innovative and emerging memory technologies, sensors, PV cells...

Numerical simulation: platform devoted to the simulation of devices and circuits

Clean-room facilities: fabrication of micro and nano-devices (sensors, photovoltaic devices,...)

Physical characterization: TEM, UHRTEM, XRD, SIMS, AFM, ellipsometry, C-AFM, STM...

ASTEP: Altitude Single-Event Effects Test European Platform (circuits and advanced nanometric devices)



***A doctoral school highly
integrated in its environment***

Industrial & academic partners



- Airbus Helicopters • AMI Semiconductors • Apollon Solar • Areva • ASK • Atmel • Buffet-Crampon • Cadence • CIAT • Crocus Technology • Dassault Aviation • DCNS • EDF • Freescale Semiconductors • Gemalto • IBM • Infineon • Inside Contactless • Ion Beam Services • Liebehrr • Movea • Nexcis • NXP • Orange Labs • O'Right • PSA • Renault • Safran • Saint-Gobain • SNCF • SNECMA • STMicroelectronics • Slios • Stid • Tagsys • Thalès • Total • Tower Semiconductor • Winlight • Xilinx • etc.

- ADEME • CEA DAM • CEA INES • CEA LETI • CEA LITEN • CMP-GC • CNES • DGA • EPFL • ESA • IMEC • Fraunhofer Institutes • IEF • INRS Energy • LAAS • MDM • NASA • ONERA • Politecnico di Milano • RWTH-Aachen • etc.

Founder member of national doctoral network on engineering sciences

REDOC SPI
Réseau National des Ecoles Doctorales
en Sciences Pour l'Ingénieur (SPI)

Contactez le réseau
contact@redoc-spi.fr

Demande d'infos

Rechercher une Ecole Doctorale

Par région

Par thème

Chercher

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Ingénierie - Matériaux Mécanique
Energétique Environnement Procédés Production

ED Ingénierie – Matériaux, Mécanique, Energétique, Environnement, Procédés, Production

Contactez le réseau

Association REDOC SPI
Maison de la Mécanique, 39 rue
Louis Blanc
92400 COURBEVOIE
contact@redoc-spi.fr

Actualités

**Workshop de l'EUA à l'Université
d'Aix-Marseille**
Aix-Marseille Université a accueilli,
les 22 et 23 janvier 2015, le

<http://www.redoc-spi.fr/>

Few reasons for living in Marseille...

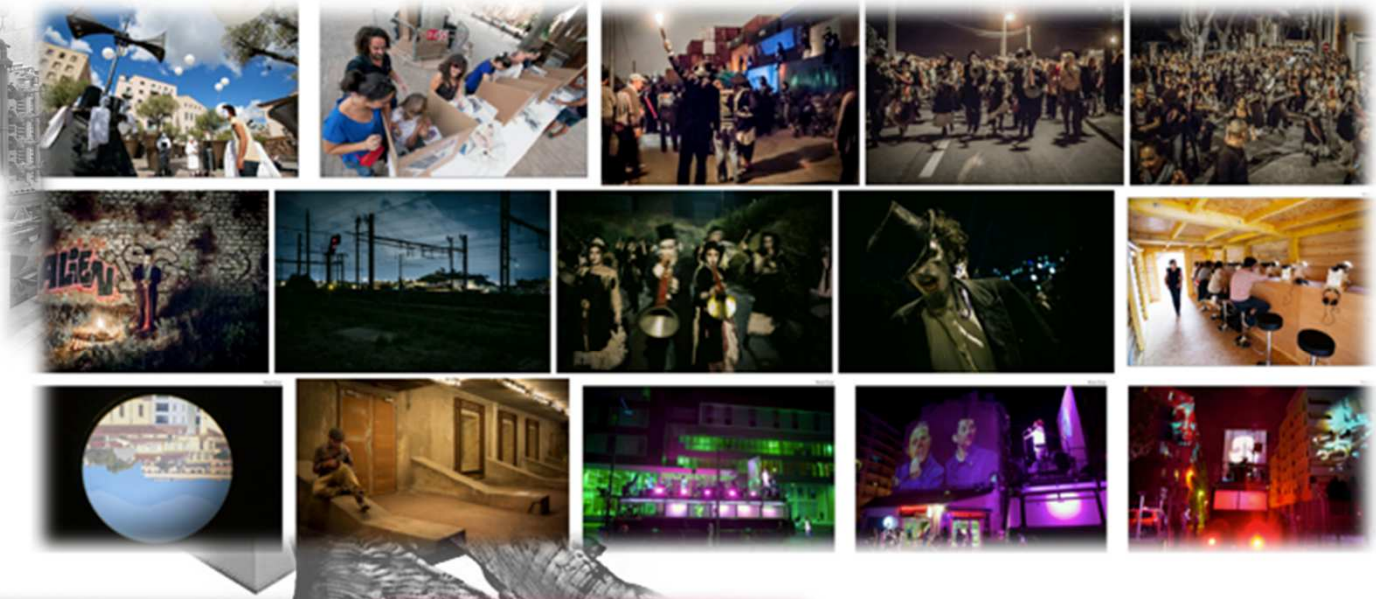


Marseille, European capital...

of Culture in 2013...

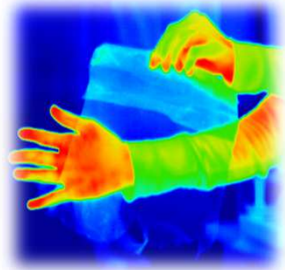
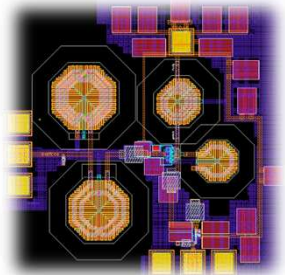
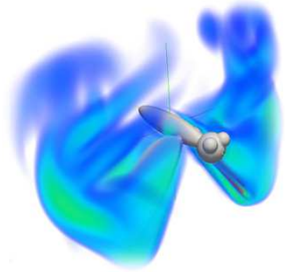


**MARSEILLE
PROVENCE 2013**
CAPITALE
EUROPÉENNE
DE LA CULTURE



...and Sport in 2017!





Thank you