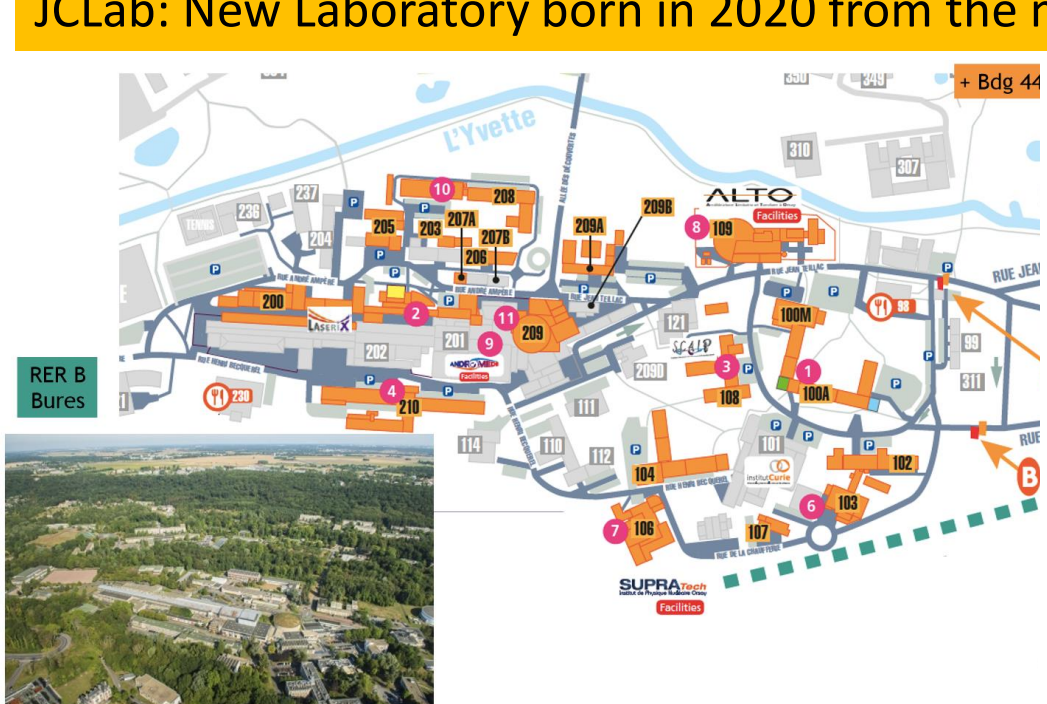
FRESHER'S DAY

JCLab: New Laboratory born in 2020 from the merger of CSNSM, IMNC, IPNO, LAL, LPT



740 Membres
220 Chercheurs & Enseignants Chercheurs
370 Ingénieurs & Techniciens
4 Divisions Administratives
8 Services support

140 Doctorants & Postdoctorants
50 Bourses de Recherche Européennes & Internationales
150 Bourses de Recherche Nationales & Locales

150 Titulaires de HDR

600 Articles dans des revues internationales

7 Pôle Scientifiques

1 Pôle Ingénierie
4 Départements

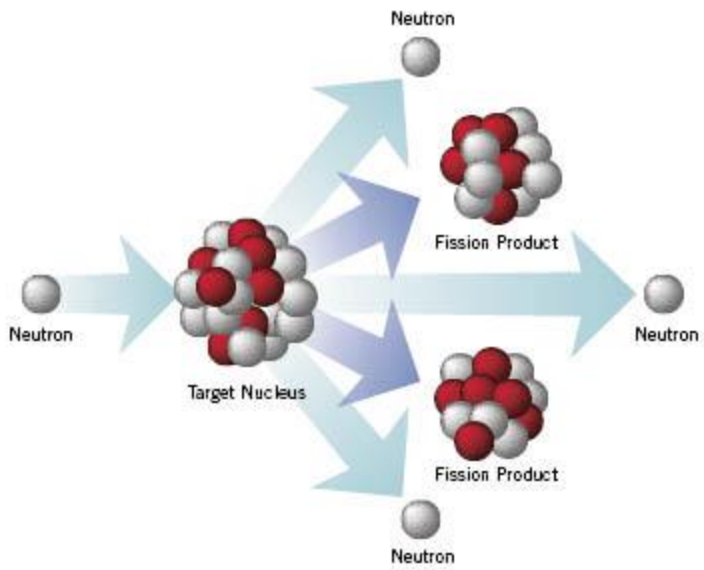
5 Plateformes de Recherche

3 Plateformes Techniques

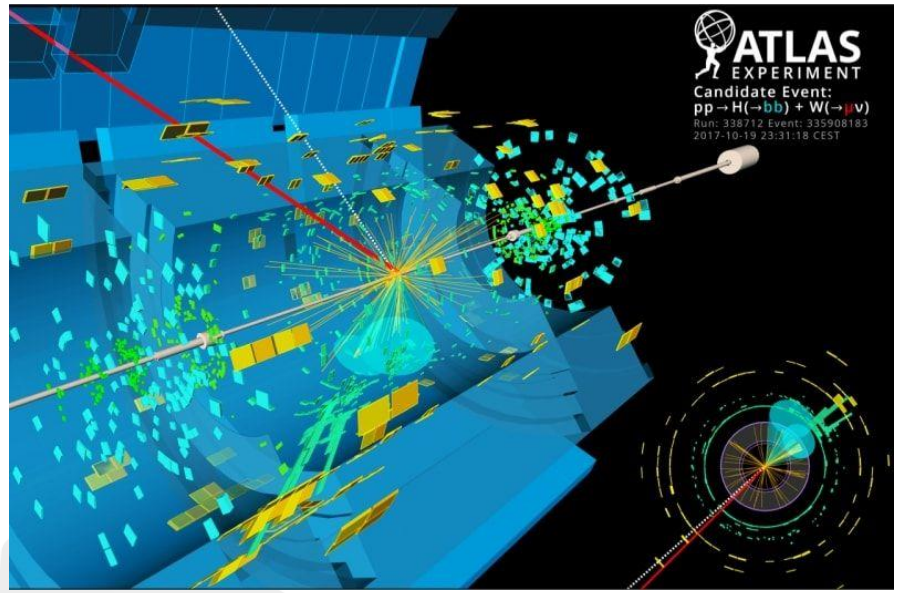
50000 m² de bâtiments
dont 20000 m² Ateliers & Infrastructures de Recherche

IJCLab in a nutshell (1)

Historically : Probing matter at small distances/high energies due to E=hc/l



Nuclear Physics



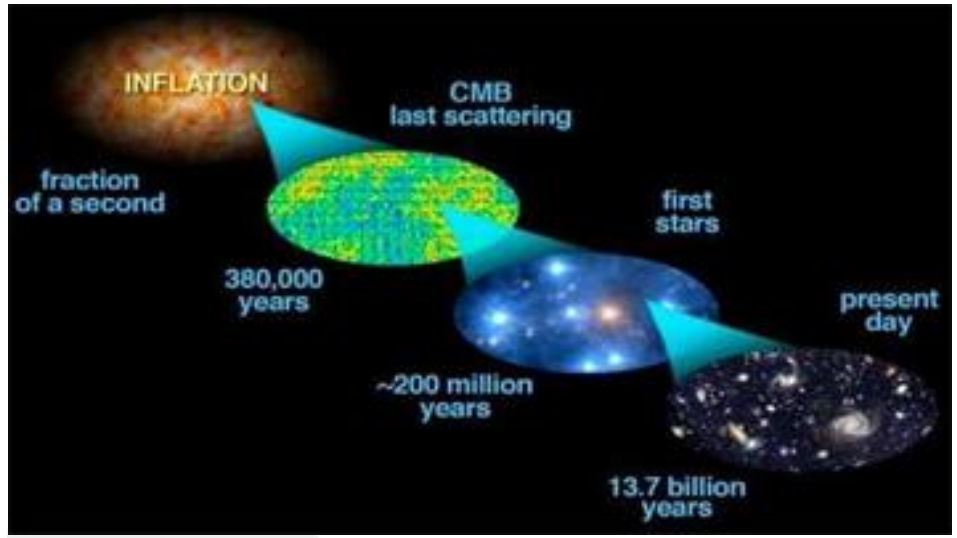
Particle Physics

Understanding the building blocks of matter, their interactions,
and how matter properties emerge from them

IJCLab in a nutshell (2)

High energies also involved in studying violent phenomena of the Universe
with natural links with high-energy physics

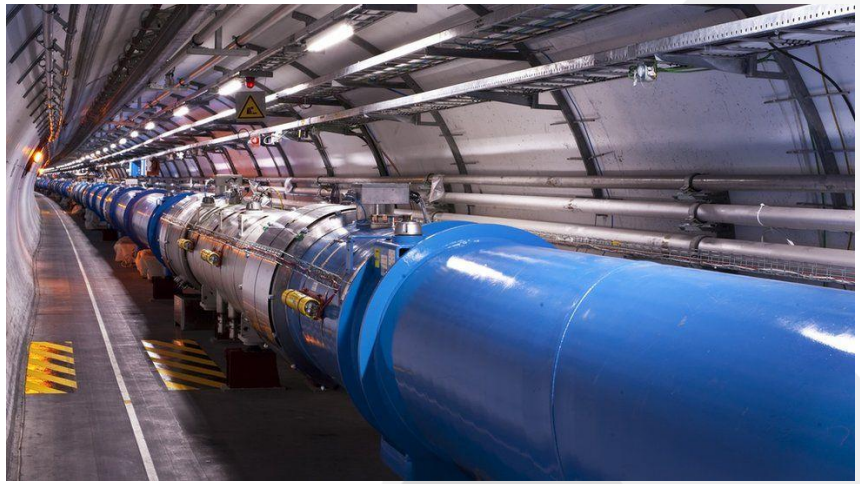
Astrophysical events
(high-energy cosmic rays,
black holes merger,
general relativity...)



Cosmology
(evolution of the Universe,
inflation, large structures,
dark matter and energy)

IJCLab in a nutshell (3)

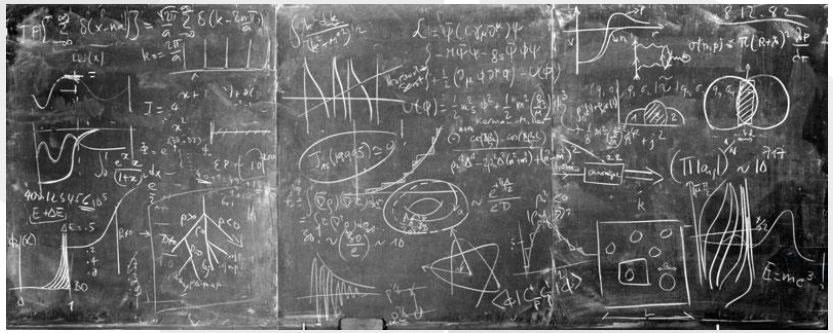
Building tools to perform these investigations



Accelerators

Detectors

Theory : interpreting and relating results

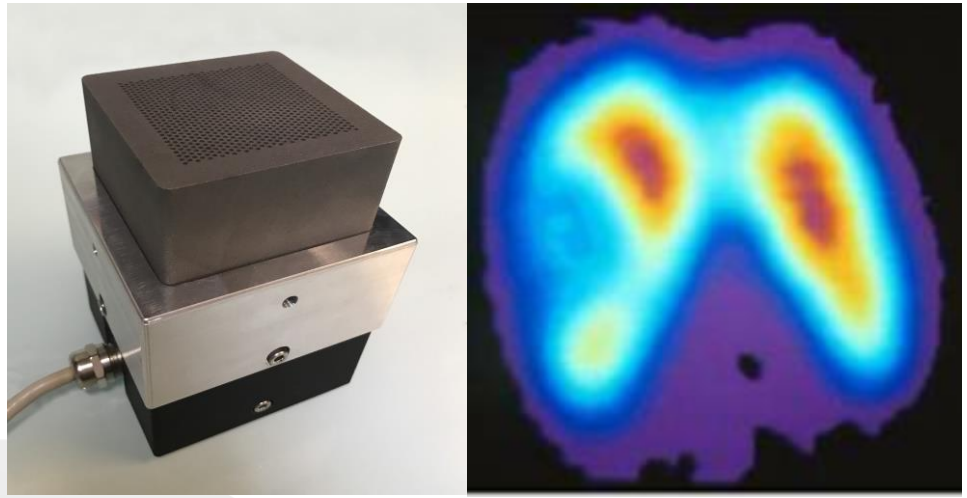


and suggesting new tests and ideas

IJCLab in a nutshell (4)

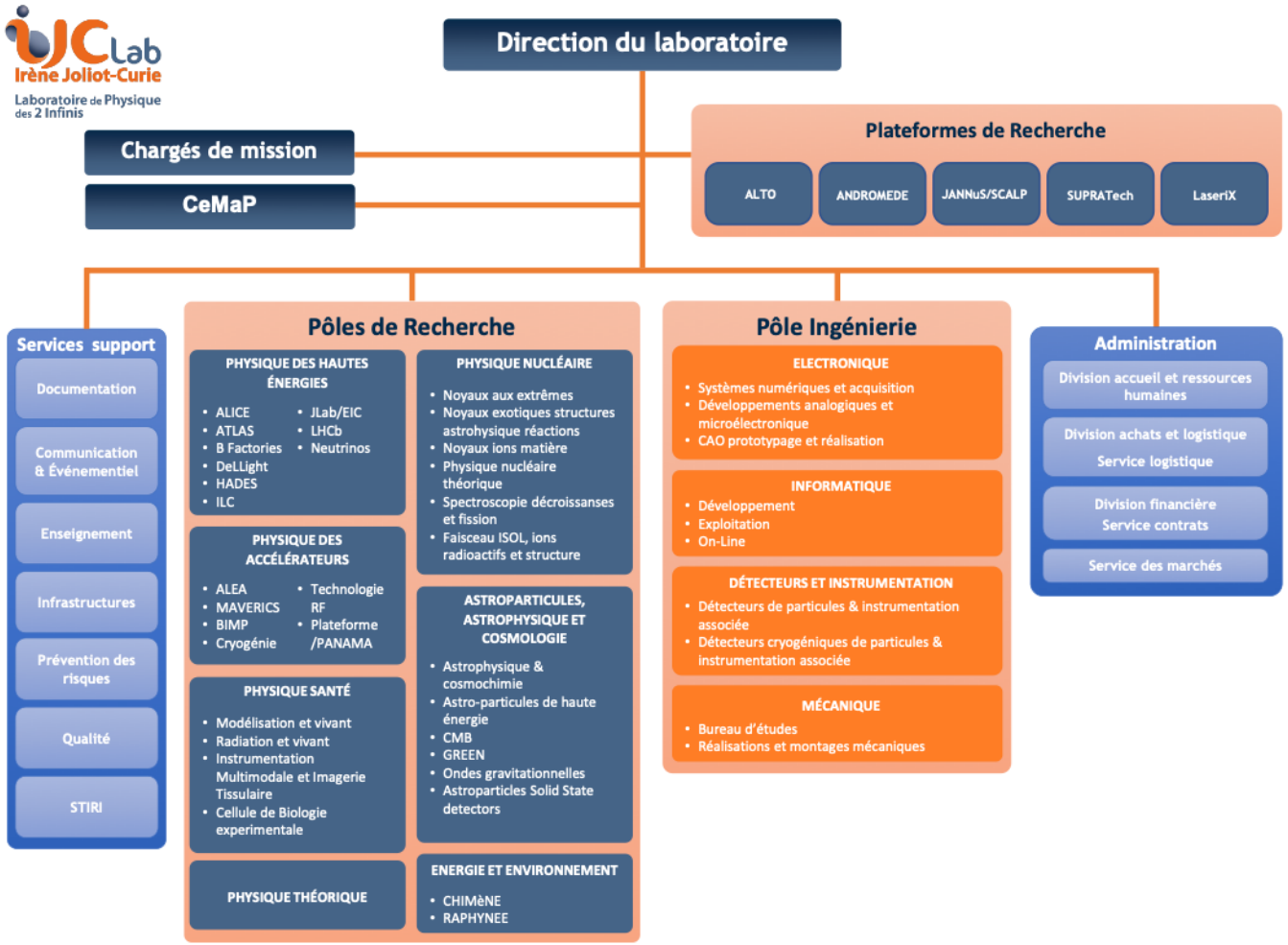
Tools and concepts applied in areas with impact on society

energy and environment
(nuclear energy,
radiochemistry...)



health physics
(imaging,
therapy by irradiation)

Formed on 2020 by the merging of CSNSM, IPN, IMNC, LAL, LPT



~710 membres (530 permanents)
One of the biggest laboratory in
CNRS / Paris-Saclay / Université de Paris
In the network of 8 major European laboratories

7 Pôles de recherche
31 research teams et 2 services

1 Pôle Ingénierie
4 Departements with 11 Services

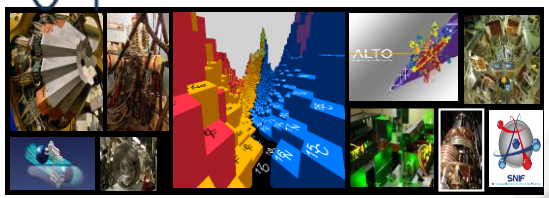
1 Pôle Administration
3 Divisions + 1 Service

8 Support Services

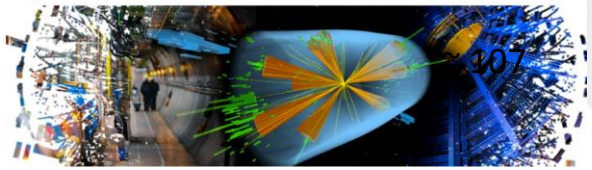
5 Plateformes (with externals)
+ several technical platforms

The ensemble of all the themes of "the physics of the two infinities" with the presence of strong historical/existing poles, of emerging poles and of activities at the interfaces

PHYSIQUE NUCLÉAIRE NUCLEAR PHYSICS ~ 67

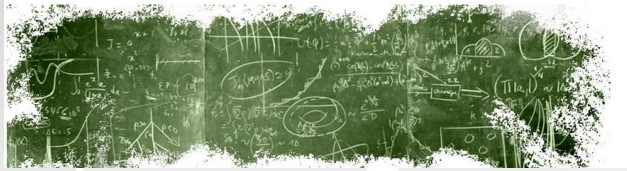


PHE Physique des Hautes Energies High Energy Physics

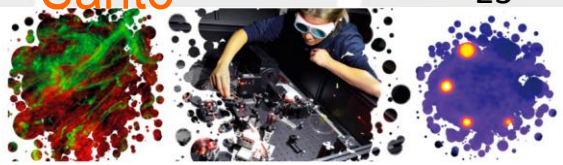


A2C Astroparticles, Astrophysics & Cosmology ~ 64

Théorie ~ 52



Santé ~ 23



Accelerator Physics ~ 87

Including RF and cryogenic services

Energie et Environnement ~ 40

~ 130 PhD

IJCLab / Science

PHE
- Hadronic Physics
- Particle Physics
- Neutrino (reactors/acc.)

NUCLEAIRE
- Nuclear Structure
- AstroNuclear

ASTRO/COSMO
- Astroparticles
- Astro/AstroCh.
- Cosmology
- Dark Matter
- Neutrinos

ENERGY & ENVIRONNEMENT
- Nuclear Data
- Scenarios
- Material
- Radiochimistry

ACCELERATEUR
- Beal Dynamics
- Laser/Electron
- Material
- RF
- Cryogeny

THEORIE

SANTE
- Radiotherapy
- Imaging
- Modelisation

IJCLab Technique/skills

1 Pôle Ingénierie 4 Départements

5 Plateformes de Recherche

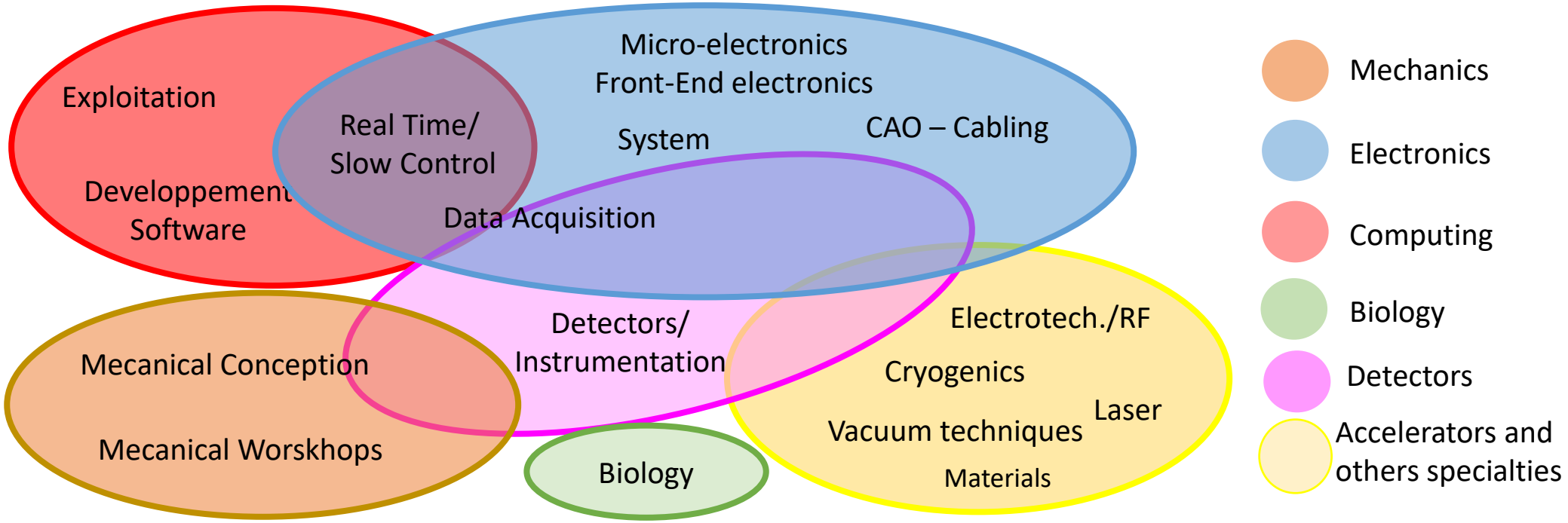
3 Plateformes Techniques

RF Cryogenics

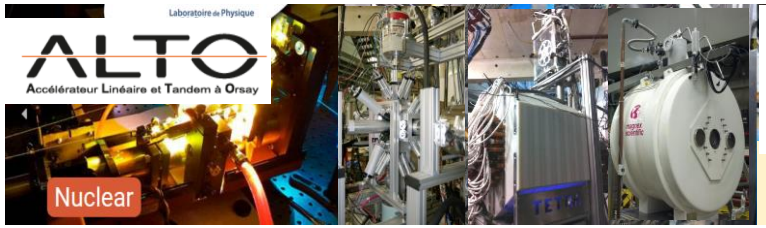
~180 staff members
4 Departments :
Electronics / Computing
Instrumentation / Mechanics
with 11 Services

Technical staff with technical skills/expertise
essential pillars for the laboratory to design, draw and build instruments.

- Technical services are fuelled by the challenges of research (R&D and projects)
- The proximity of technical and research teams (integrated teams)
- The ability to combine and make coexist versatility and specialization



The Platforms @IJCLab



- **15 MV Tandem** (from proton to aggregates)
- **electron linac** -> radioactive beams by photofission

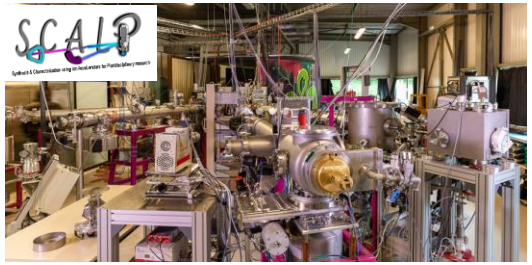
Nuclear, Health physics, Irradiation

Opened to externals

Several MeV protons, multicharged atomic ions, gold molecules and nanoparticles

Nuclear/A2C, Health physics, Irradiation

Opened to externals



Ion irradiation / implantation and *in situ* characterization techniques (TEM, IBA)

Energy, nuclear materials, Health physics, Irradiation physics and chemistry

Opened to externals

The Platforms @ IJCLab

Captinnov : Silicon Detector Caractérisation/Production

VIRTUAL DATA
Advanced computing resources infrastructure
Grid / Cloud

Health research themes

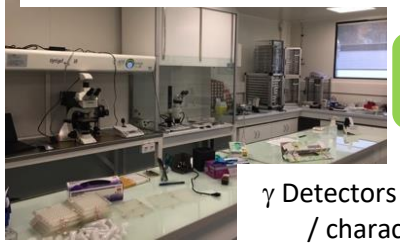
PIMPA
Plateforme d'imagerie Multiphotonique du Petit Animal

non linear optical biphotonique imaging

A2C Research themes

CALVA

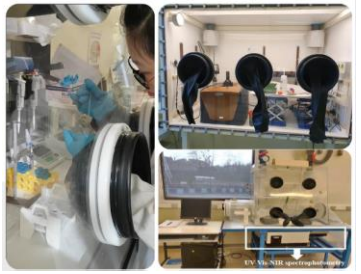
Micrometeorite Preparation/analysis



Myrtho

γ Detectors development / characterization

Radiochemistry laboratory
Actinides - Bat 107

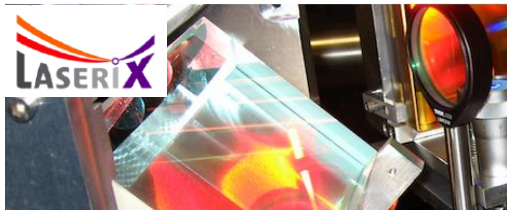


Accelerators research themes/technologies

Opening to Materials, atomic physics, detectors

SUPRATECH

R&D on the superconducting cavities (prepare, package, assemble & testof the superconducting RF cavities).



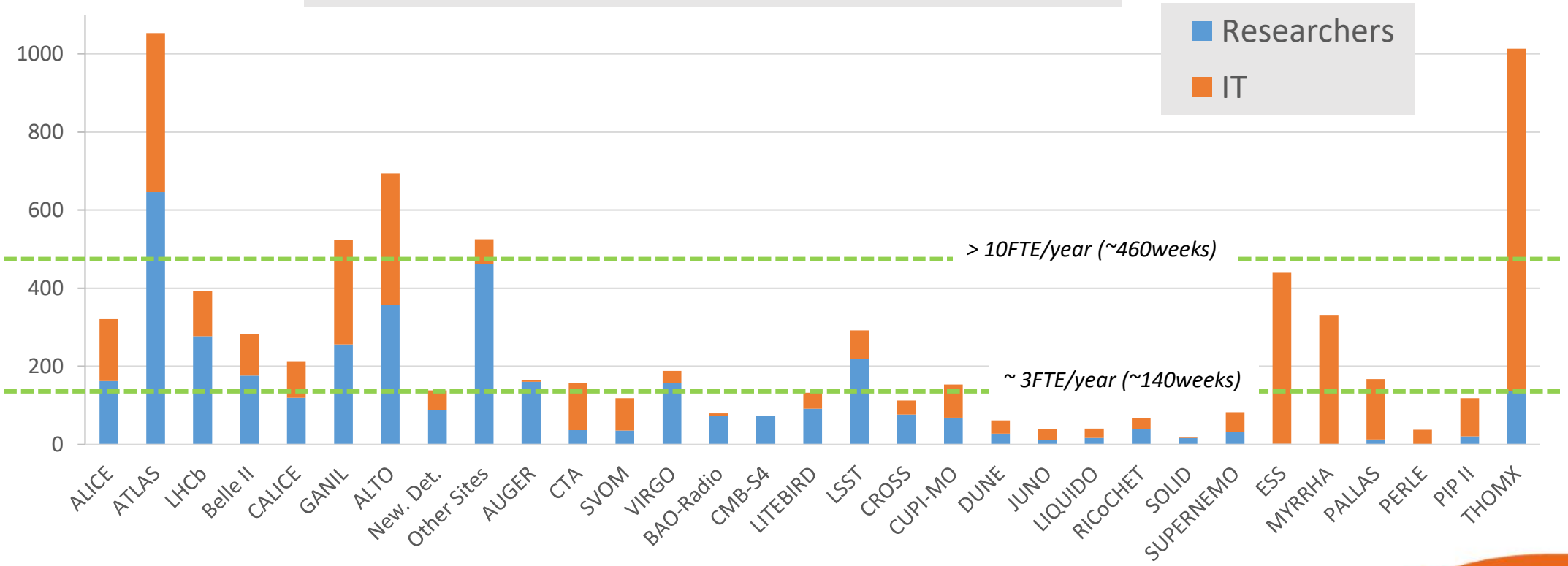
LaseriX

coherent, intense, brief (50fs to 10 ps) **sources in near-infrared** (800nm) **and EUV** (30 to 90 eV)

Vide et Surfaces

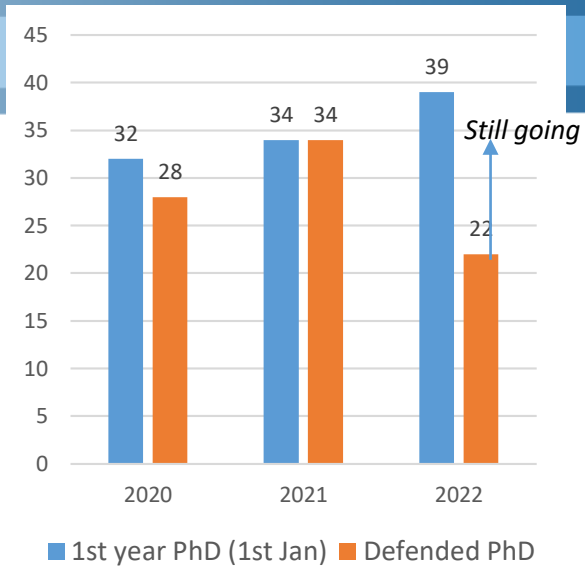
In construction

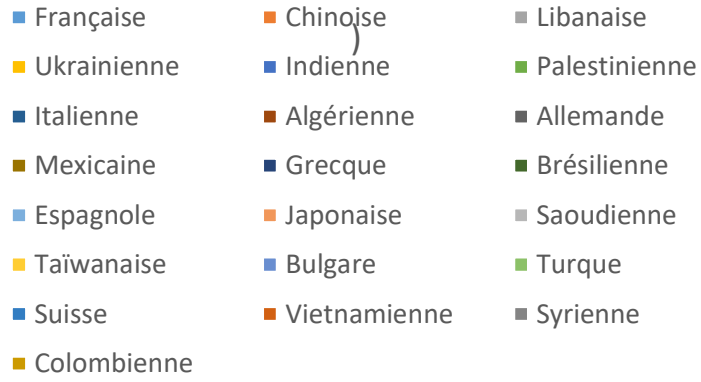
« Large » projets at IJCLab
Numbers of people working on it



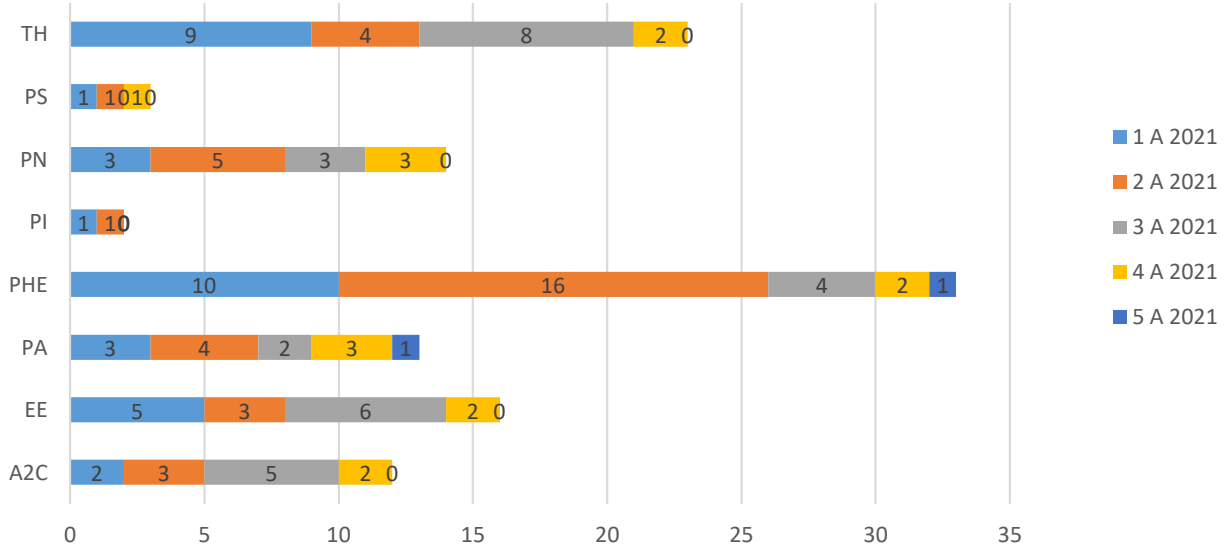
PhD @ IJCLab

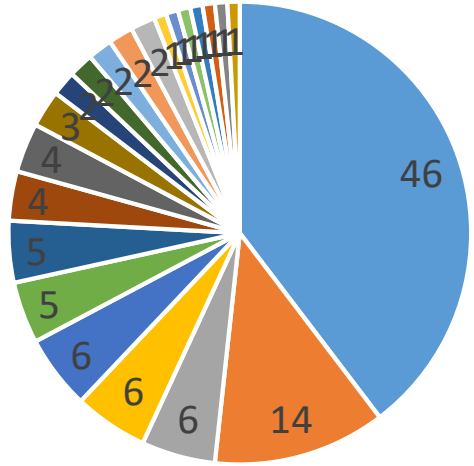
- ~30 theses defended/year
- ~slightly more than 30 incoming PHD students per years since IJCLab ; **39 students this year 2022**



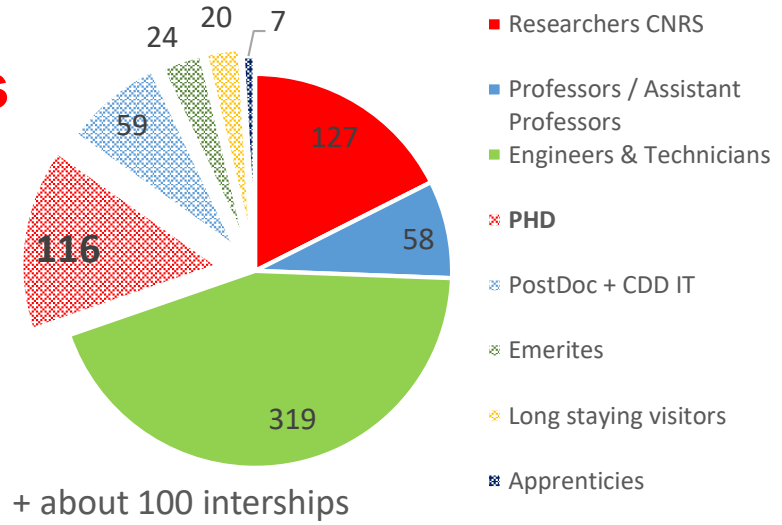


116 PHD student @october 2022





Students are central @ IJCLab, you are :
1/6 of the IJCLab
1/3 of the researchers



+ about 100 interships

Some actions

- **CAT** (Comité Accompagnement de Theses).
- 1 **Binome in the CL** (Conseil du Laboratoire)
- Strong link between Direction and the Student's Bureau

→ With a **specific budget** for scientific, social life of students. On going actions with the rehabilitation of student's social life room

HAVE A NICE AND FRUITFULL FRESHER'S DAY

IJCLab Missions

The mission of IJCLab is to advance knowledge by

- Contributing to projects at all stages: proposal, design, construction, operation, data analysis, theory
- Playing a major role in the conception, design and construction of current and future accelerators.
- Developing and operating research infrastructures and technological platforms supporting these research areas as well as original research in health physics and energy
- Promoting the development of new technologies for science for the benefit of society and thus supporting national and European industrial competitiveness
- **Welcoming students that the laboratory trains through and for research in the heart of a world-class academic environment.**