Formed on 2020 by the merging of 5 Laboratories in Orsay-France

CSNSM	*Centre de Sciences Nucléaires et de Sciences de la Matière*
IPN	*Institut de Physique Nucléaire*
IMNC	*Imagerie et Modélisation en Neurobiologie et Cancérologie*
LAL	*Laboratoire de l'Accélérateur Linéaire*
LPT	*Laboratoire de Physique Théorique*

Achille Stocchi
19/11/2021

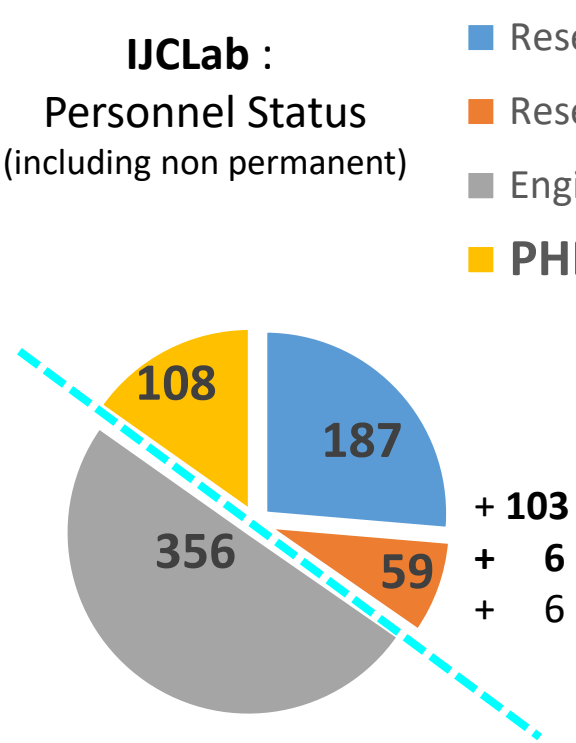
IJCLab : Located in Orsay Campus, 30 Km South-Paris, Campus Paris-Saclay

IJCLab is occupying a large part of the Orsay Campus (~50000m²)

RER B
Bures

IJCLab personnel et tutelles

IJCLab :
Personnel Status
(including non permanent)



710 people
+ 103 stagiaires
+ 6 Apprentis
\+ 6 Long term visitors

All in all >800 people present at the laboratory

CNRS (Centre National de la Recherche Scientifique)

- ~17000 researchers + 16000 technical staff
- 10 institutes among them **IN2P3 (Institut national de physique nucléaire et de physique des particules)**
- IN2P3 composed by ~20 large-scale laboratories
- IJCLab mainly linked to IN2P3.
- **IJCLab (~700 people) ~1/4 of HR of the IN2P3.**

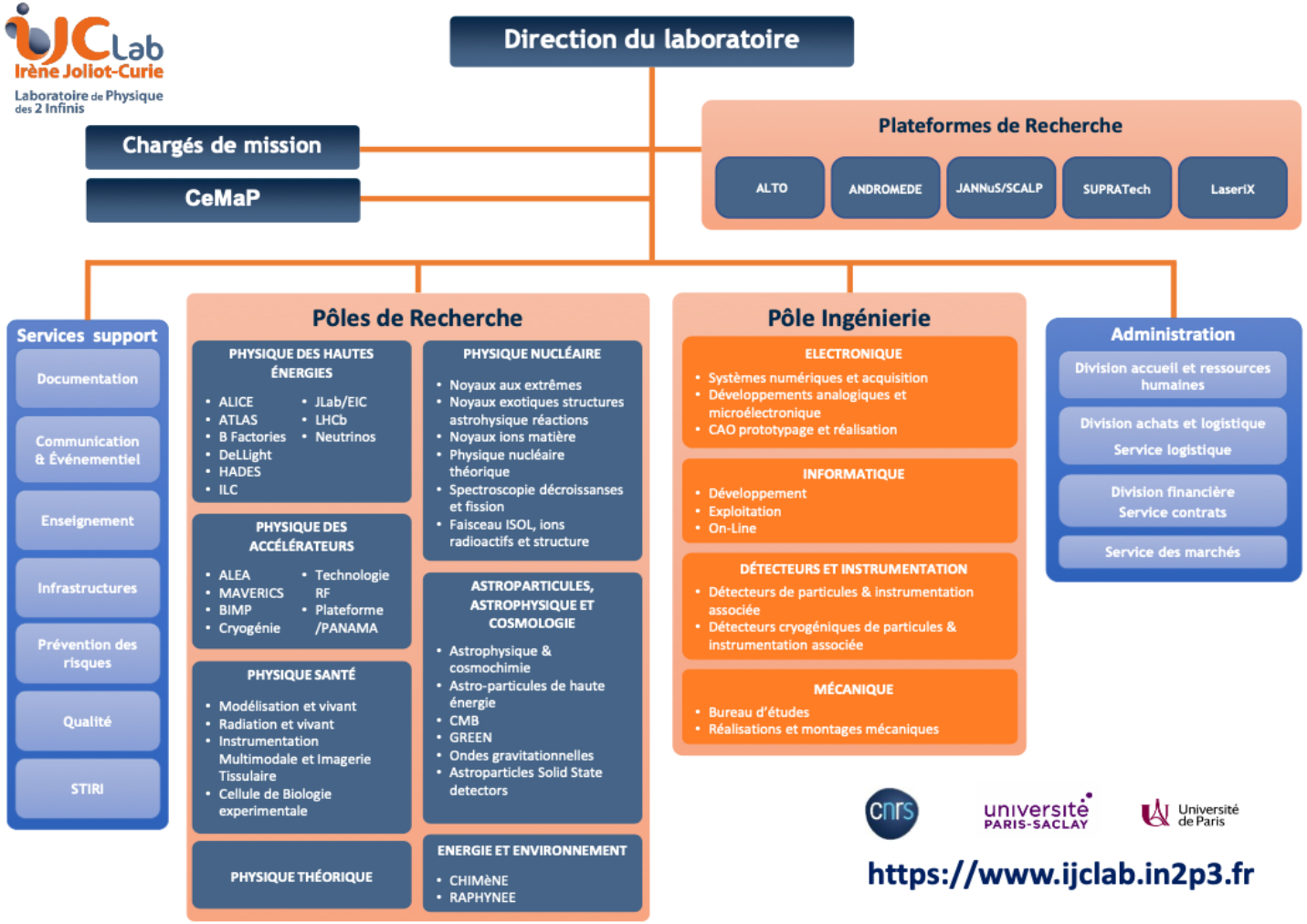
University Paris-Saclay

- 275 laboratories : 9000 researchers, 11000 IT *(University and research organism altogether, comprising CNRS and CEA)*
- 13th Shanghai ranking (Physics : 9th World, 1st Europe)
- 48000 students (with 9000 Master, 4000 PHD)

University de Paris

- Specific links with IJCLab in Health Physics

IJClab in a nutshell - I



cnrs université PARIS-SACLAY Université de Paris

https://www.ijclab.in2p3.fr

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

7 Research Poles
31 research teams et 2 services

1 Engineering Pole
4 Departments with 10 Services

1 Administration Pole
3 Divisions + 1 Service

8 Support Services

5 Platforms (with external users)
+ several technical platforms

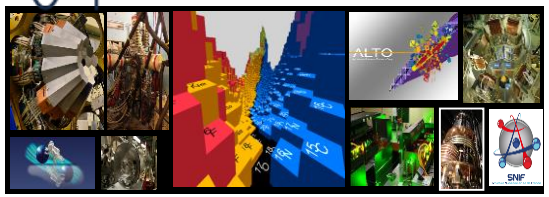
IJClab in a nutshell - II

7 Pôle Scientifiques

A2C Astroparticles, Astrophysics & Cosmology

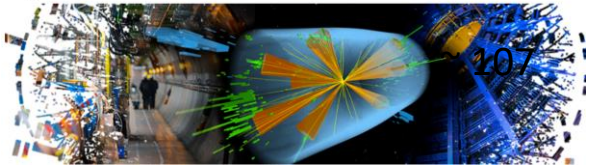
~ 64

PHYSIQUE NUCLÉAIRE
NUCLEAR PHYSICS ~ 67

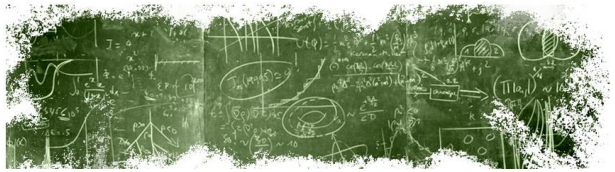


~ 107

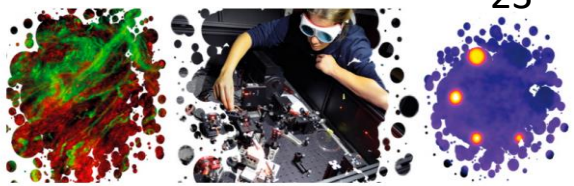
PHE Physique des Hautes Energies
High Energy Physics



Théorie ~ 52



Santé ~ 23



Accelerator Physics ~ 87

Including RF and cryogenic services

Energie et Environnement ~ 40

~ 110 PhD

IJClab in a nutshell – III : Technical Skills

1 Pôle Ingénierie 4 Départements

~180 staff members

4 Departments :

Electronics / Computing
Instrumentation / Mechanics

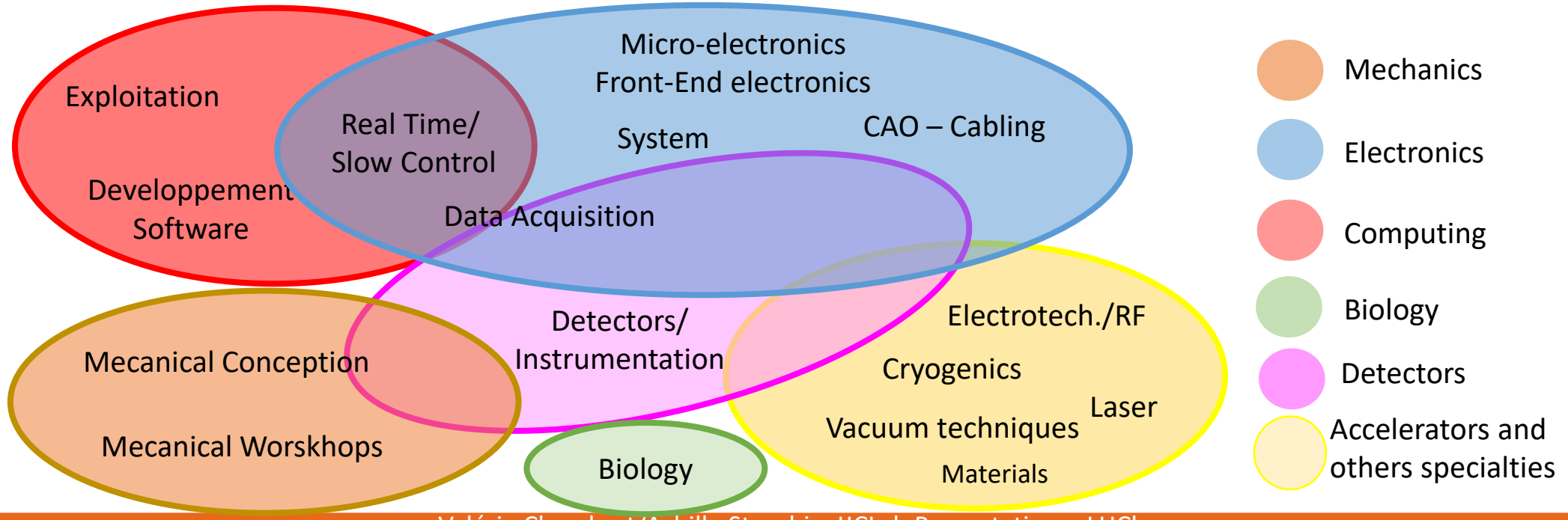
with 10 Services

Services in accelerator Pole
- **RF**
- **Cryogenics**

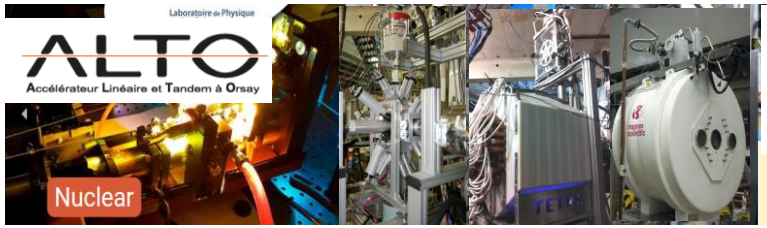
~30 staff members

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



IJClab in a nutshell – IV : The Platforms



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

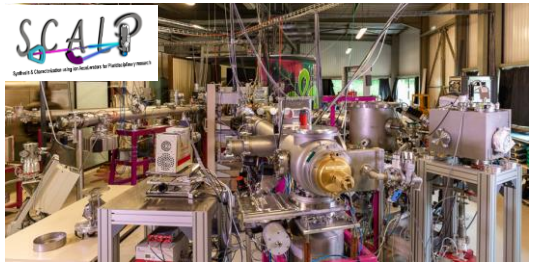
Nuclear, Health physics, Irradiation

Opened to external users

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

Nuclear/A2C, Health physics, Irradiation

Opened to external users



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

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

Opened to external users

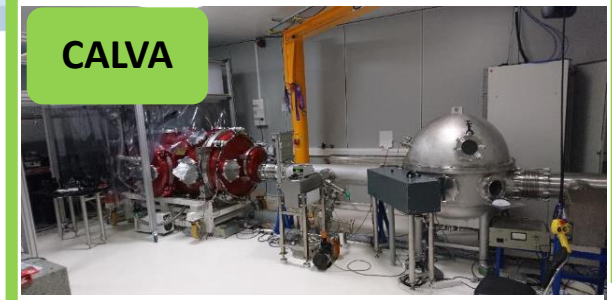
Les Plateformes IJClab

Semiconductor Platform :
Silicon Detector Characterisation/Production

VIRTUAL DATA
Advanced computing resources infrastructure
Grid / Cloud

A2C Research themes

CALVA



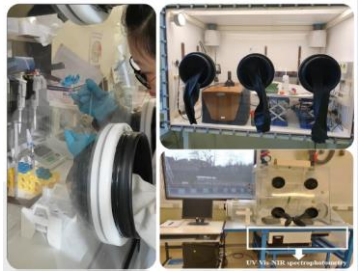
Cavity locking/Squeezing for VIRGO and ET

Micrometeorite Preparation/analysis

Myrtho

γ Detectors development / characterization

Radiochemistry laboratory
Actinides - Bat 107

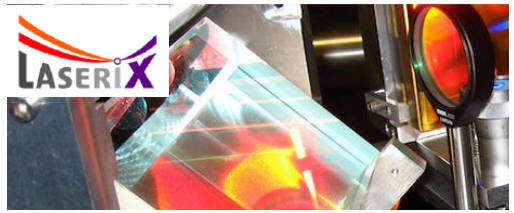


Accelerators research themes/technologies

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

Major laboratoires with facilities or facilities in the world where IJCLab is involved

Europe

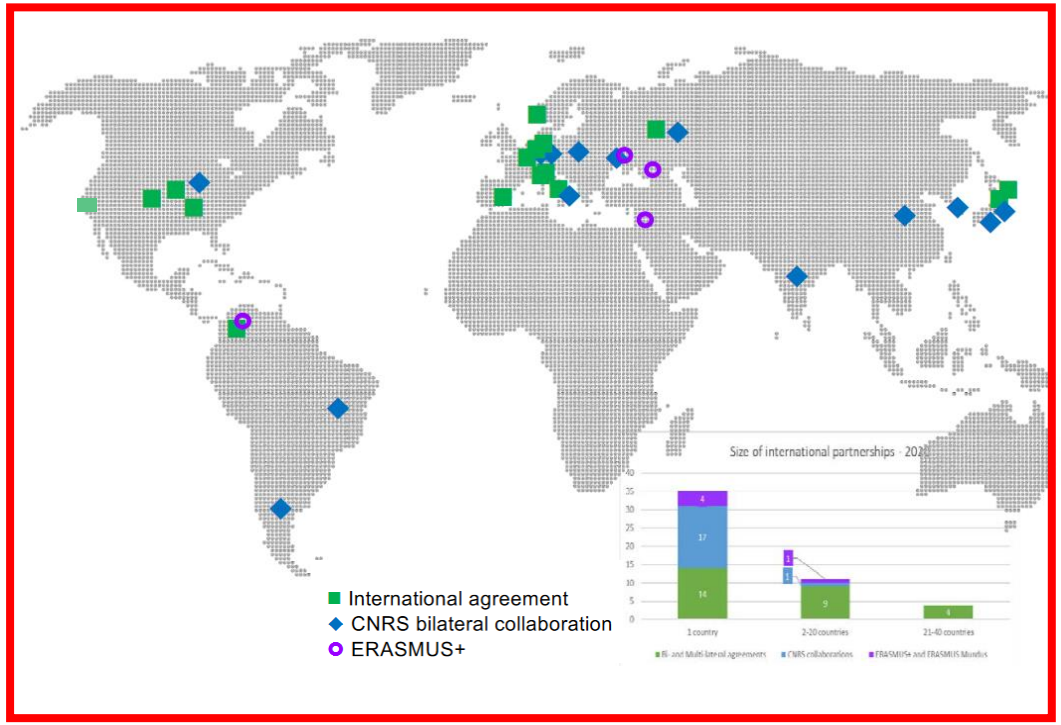
SCK-CEN-Belgium
CERN
CTA-Spain
DESY-Germany
Dubna-Russia
EGO/VIRGO-Italy
ESS-Sweden
GANIL-France
GSI-Germany
Jyväskylä -Finland
LNCA-France
LNGS-Italy
LNL-Italy
LSM-France

World

Auger-Argentina
LBNL/SLAC-US
Fermilab-US
JLab-US
KEK-Japan
LSST-Chili
Riken-Japan

Each year, several bilateral international collaborations are signed with research centers and universities.

Recent example given below



IJCLab a student place : Attractiveness based upon education / research

Teaching

Academic, Technical, Platforms

~60 Researchers-Teachers + ~30 Researches-CNRS *are involved in University teaching.*
~60 Technical staff *teach different skills and specialities (university / Schools..)*
Research Installations/ Platforms -> Educational platforms with dedicated lines

Internships for students

Internships: the gateway for students to discover research

Internships at different level (from L1 to M2 and international.) :
~110 internships in 2021 corresponding to approximatively ~600 months

Thesis

PhD Training by research and for research

~110 PhD students in the ensemble of the laboratories (from 30 different nationalities)
Number of technical theses rapidly increasing

International Schools

Participation and creation of international/national schools

Participation/creation of international/national schools
School : ***WISHEPP (Palestine), TESHEP (Ukraine…), QCD, School at*** *L3 level…*
IJCLab leads ***Erasmus+ MIC Colombia / Georgia / Ukraine / Palestine and Erasmus Mundus Lascala***

In conclusions, our Manifesto

- **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.