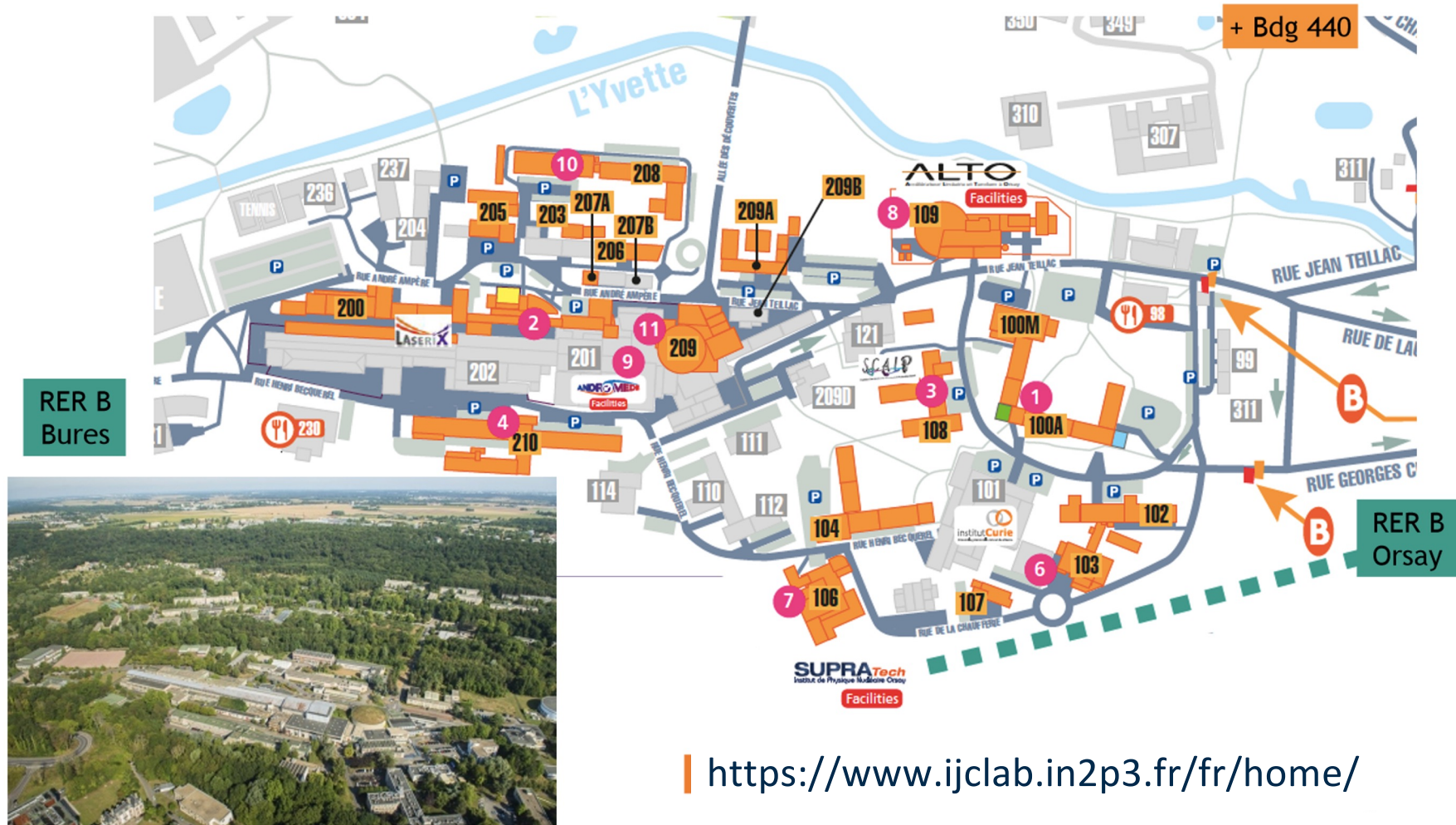


IJCLab & le pôle A2C

Octobre 2024

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



<https://www.ijclab.in2p3.fr/fr/home/>

740 Membres

220

Chercheurs &
Enseignants Chercheurs



Ingénieurs &
Techniciens

370

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

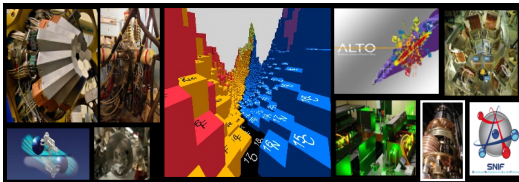
Ateliers &
Infrastructures de
Recherche

7 Pôle Scientifiques



PHYSIQUE NUCLÉAIRE NUCLEAR PHYSICS

~ 71

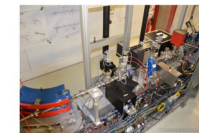


A2C Astroparticles, Astrophysics & Cosmology

~ 64

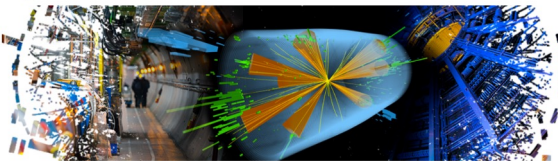


Accelerator Physics ~ 87 (incl. IT)



PHE Physique des Hautes Energies High Energy Physics

~ 107



Théorie

~ 52

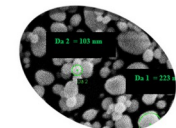


Santé

~ 23



Energie et Environnement ~ 40





~ 180 personnes

Mécanique

- Bureau d'études
- Réalisations et montages mécaniques

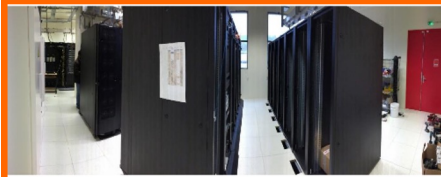


700 m² d'atelier

- 11 Tours et Fraiseuses conventionnels + 2 tours CN
- 5 fraiseuses - 1 imprimante 3D + tôlerie + contrôle

Informatique

- Développement
- Exploitation
- On-line



Virtual Data datacenter
51 racks (2000 servers)
up to 600kW

Détecteurs et Instrumentation

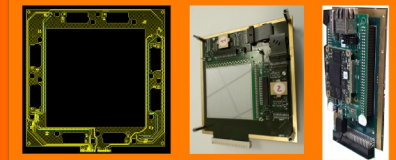
- Détecteurs de particules
- Détecteurs cryogénique

et instrumentation associée



Electronique

- Dev. analogiques et micro-électronique
- Syst. numériques et acquisition
- CAO prototypage-réalisation



Electronique bas bruit pour détecteur Si à pistes



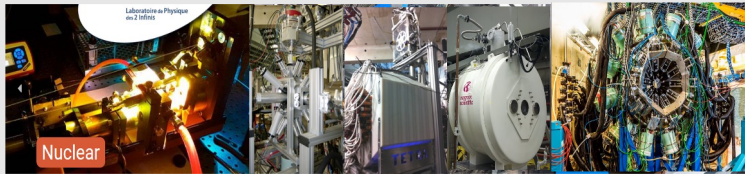
Plateformes à IJCLab



The **ALTO** platform with two accelerators unique in France :

- ② **15 MV Tandem type electrostatic** accelerator for accelerating stable beams from proton to aggregates
- ② **electron linear accelerator for producing radioactive beams by photofission.**

10 physics lines (nuclear physics, astrophysics and multidisciplinary studies...), 4000 hours/year, 30 experiments/ year.



SUPRATECH platform dedicated to **R&D on the superconducting cavities** of the future high-energy, high-power particle accelerators. Equipment to prepare, package, assemble and test superconducting RF cavities for IJCLab projects.

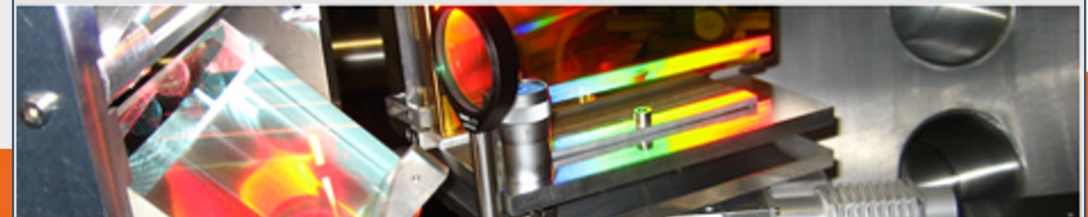


Andromede : multidisciplinary platform, unique in the range of beams of several MeVs

delivered: protons, multicharged atomic ions, gold molecules and nanoparticles. Including an "ion source" R&D activity. It is equipped with two beam lines (90° and 1°29). **JANNuS-SCALP** :

interdisciplinary platform for fields ranging from materials sciences to astrophysics, including geology and nuclear physics. **Different equipments for ion irradiation / implantation and analysis** . Coupling of Transmission Electron Microscope with ARAMIS and IRMA lines unique in the world due to the diversity of elements and energies accelerated in situ inside the MET.

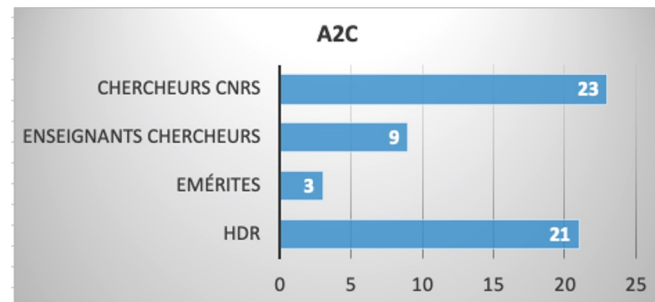
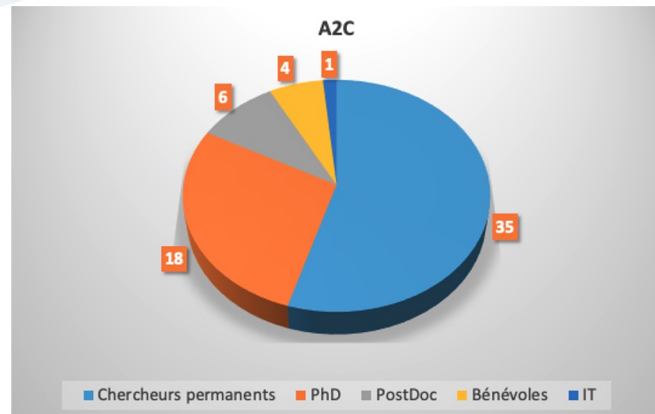
LASERIX : laser platform providing **coherent, intense and brief** (50fs to 10 ps) **sources in the near-infrared (800 nm) and EUV (30 to 90 eV) domains**. Will be completed including the electron photo-injector (PHIL).





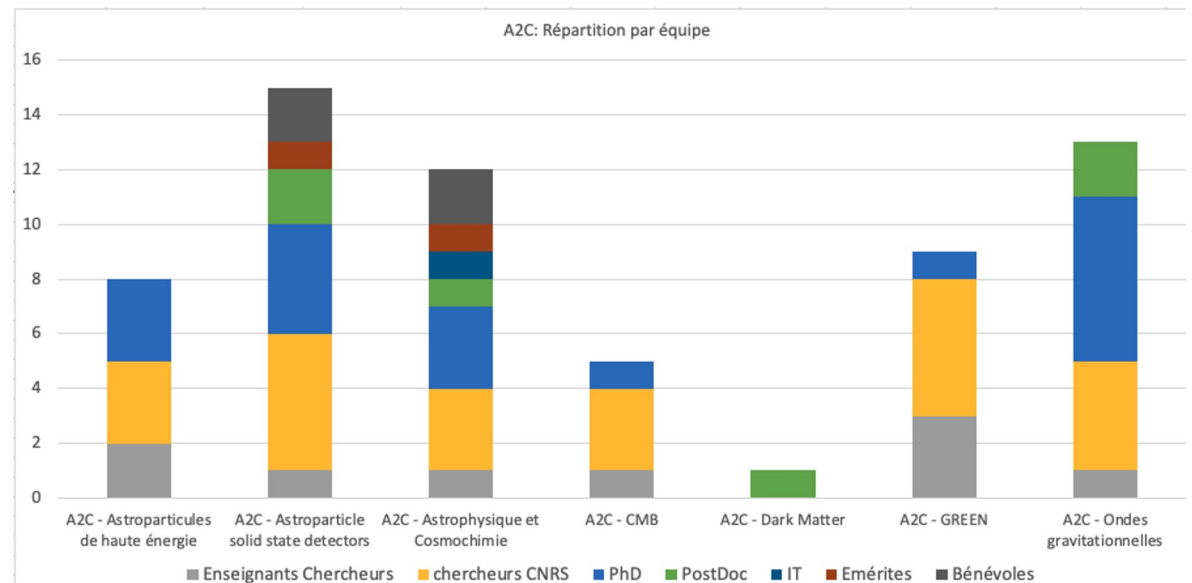
| **A2C** Astroparticles, Astrophysics & Cosmology

Who are we ?



A few numbers:

- 64 persons, among which 38% are PhD+Postdoc
- 1/3 of the permanent staff is university staff
- 65% of the permanent staff have their HDR





Science et Equipes

Les thématiques du pôle sont couvertes par **7 équipes**

Les phénomènes violents dans l'Univers

- Formation du système solaire et astronomie gamma au MeV
- Rayons cosmiques et gamma de très hautes énergies
- Ondes gravitationnelles et astronomie multi-messagers

AC : Astrophysique et cosmochimie
APHE : Astroparticules de Hautes Energies
OG : Ondes gravitationnelles

Cosmologie

- Physique de l'Univers primordial
- Etude des grandes structures via les grands relevés

CMB : Fond diffus cosmologique
LSST : Energie noire

La matière noire et la nature des neutrinos

- Recherche directe de matière noire
- La nature des neutrinos
- R&D associée

DDM : Direct Dark Matter
ASSD : Astroparticle Solid State Detectors



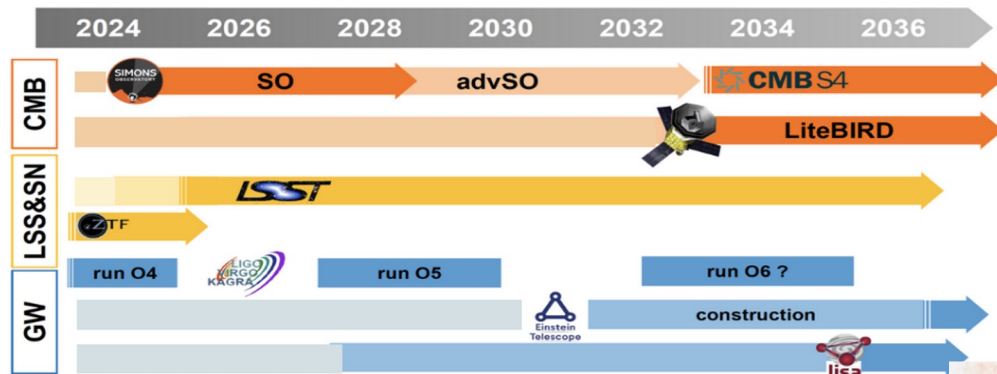
Thematics & Projects in A2C

Cosmology

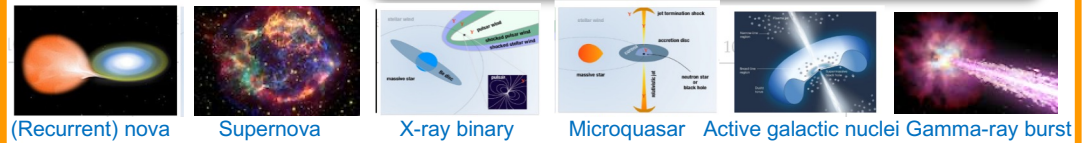
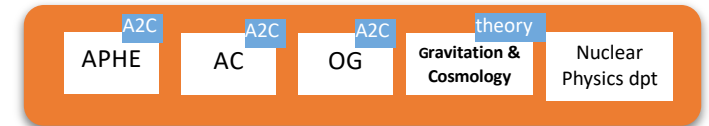


The science topics in which the IJCLab's teams are involved :

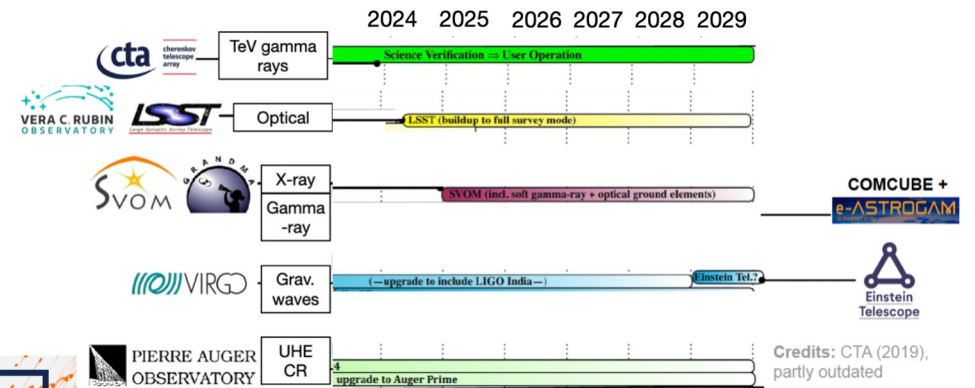
- > inflation & reheating
- > test of (modified) gravity
- > dark energy
- > neutrino physics



Compact objects



+ tests of fundamental physics



Origins of the Solar System

Return sample analysis (Hayabusa2, IJCLab collection of micro-meteorites..)