NUCLÉAIRE
& PARTICULES

Institut national de physique nucléaire
et de physique des particules
IN2P3

Top2024
Welcome from CNRS/IN2P3

Saint-Malo, Sept 22-27 2024

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→ Sept 23, 2024

IN2P3: a national institute

- 1 of the 10 institutes of CNRS
- CNRS: the leading research organization in France (staff 33k, budget 4G€/year)
- IN2P3 mission : coordinate research in the fields of nuclear physics, particle physics and astroparticle physics

COORDINATE

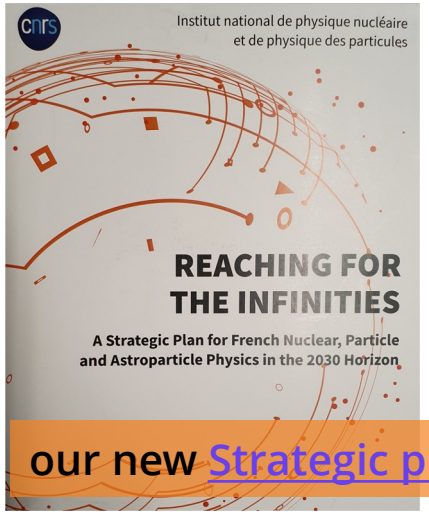
national research programs, participations in major research infrastructures

OPERATE

research units, mostly in partnership with Universities (or other research organizations)

EXPLORE

the physics of the *two infinities* : from elementary particles to the cosmos



our new Strategic plan (2030 Horizon)

Links with society :

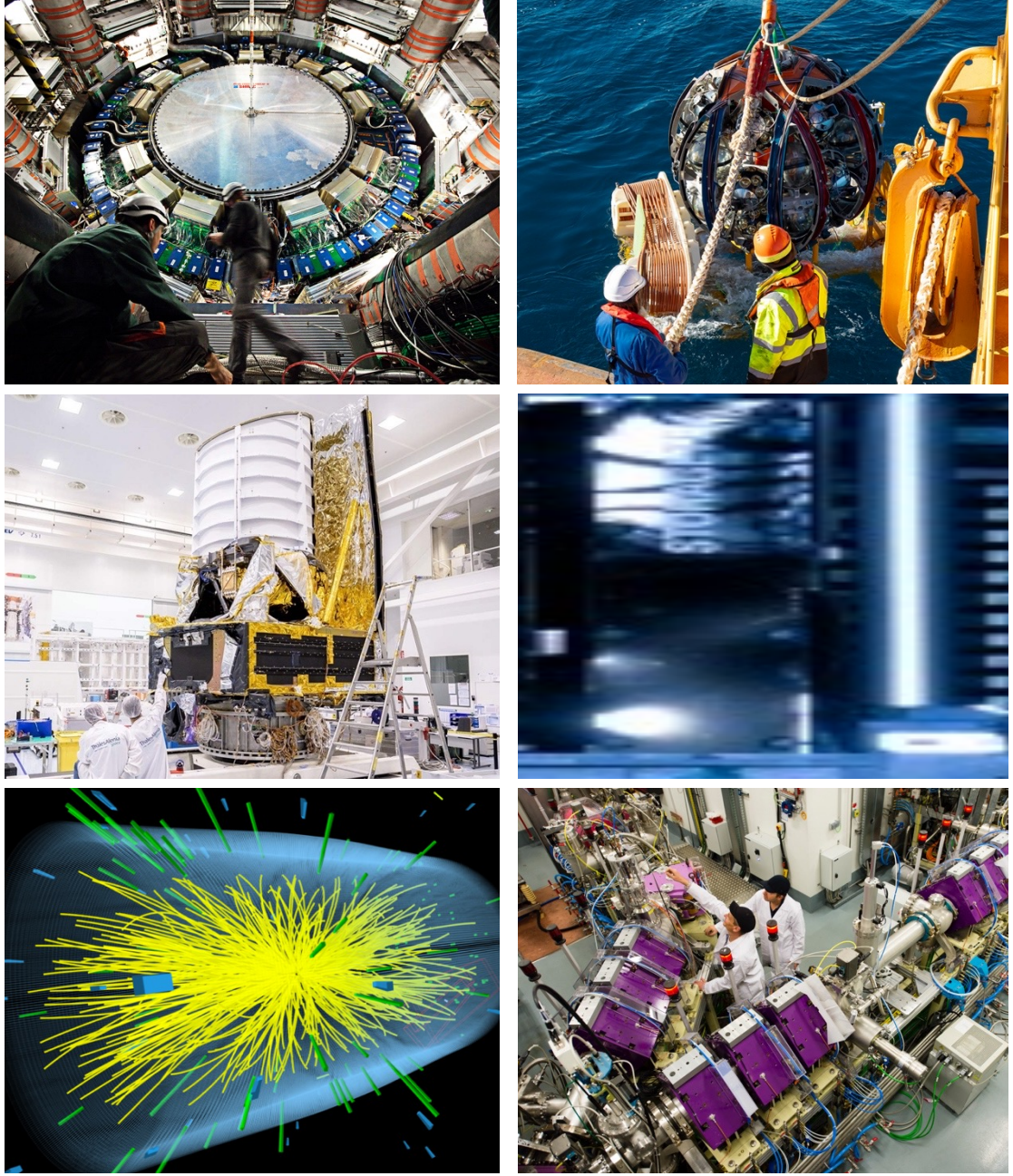
DEVELOP
associated technologies,
applications and interdisciplinary research

PROVIDE
expertise, teaching, training

IN2P3: 3+3 domains

- **Particle physics & hadronic physics**
  - Elementary constituents
  - Fundamental interactions
- **Nuclear physics**
  - Structure of nuclear matter
  - Nuclear astrophysics
- **Astroparticle physics & cosmology**
  - Composition & evolution of the Universe

- **Accelerators, detectors & technologies**
  - Research & developpement
- **Computing & data**
  - Data science & computing research
- **Nuclear physics for the benefit of society**
  - Nuclear energy
  - Medical applications



IN2P3: key figures

- **25**
  research laboratories & technical support units, in partnership with universities*, CEA**, INFN***, KEK¶
  - *incl. UC Berkeley, Univ Tokyo, MSU **GANIL, ***EGO, ¶TYL

10
interdisciplinary research platforms (accel.)

30
national research programs

50
international research agreements

80 M€
annual budget

(projects, excl. salaries)

20 M€
yearly for very large research infrastructures

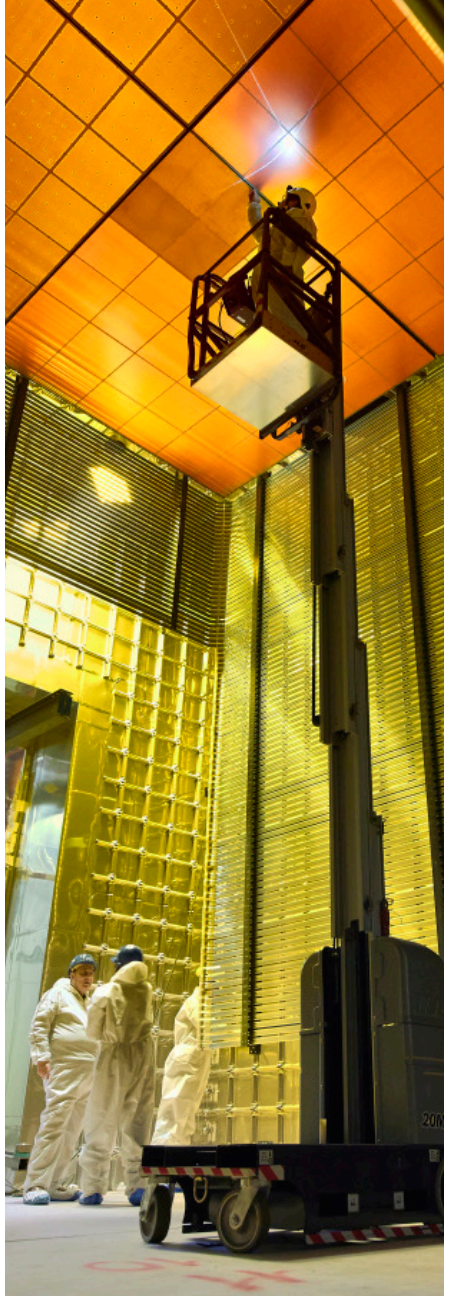
(projects, excluding salaries)

1 000 staff physicists
(CNRS full-time scientists & faculties)

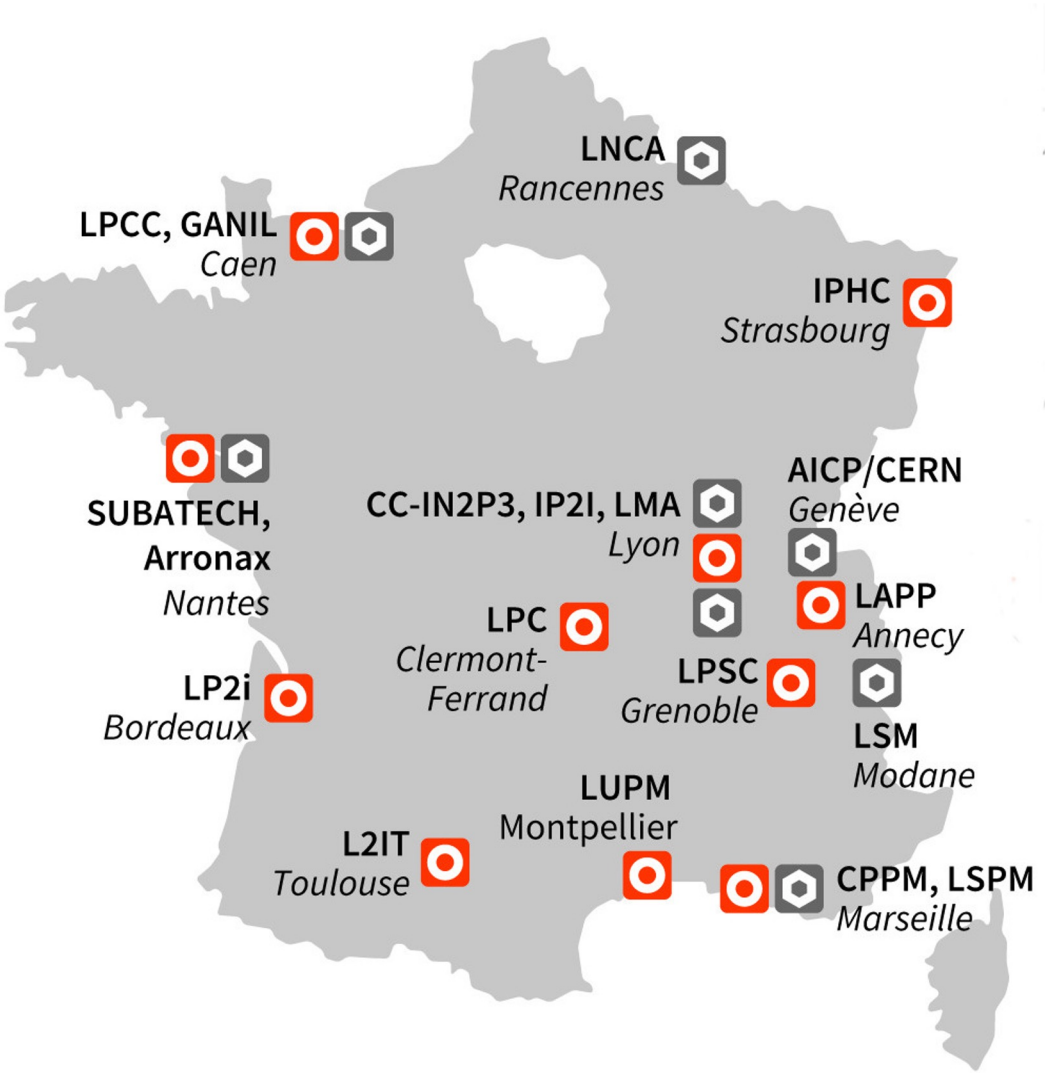
1 500
engineers, technicians & administrative support

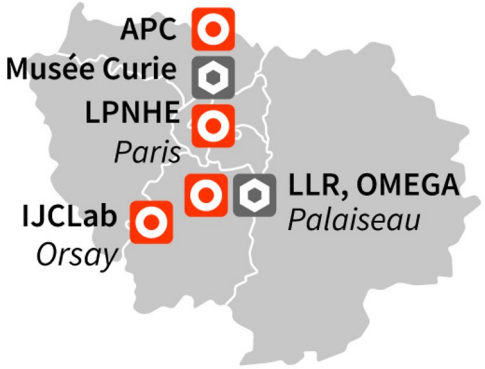
300
post-docs

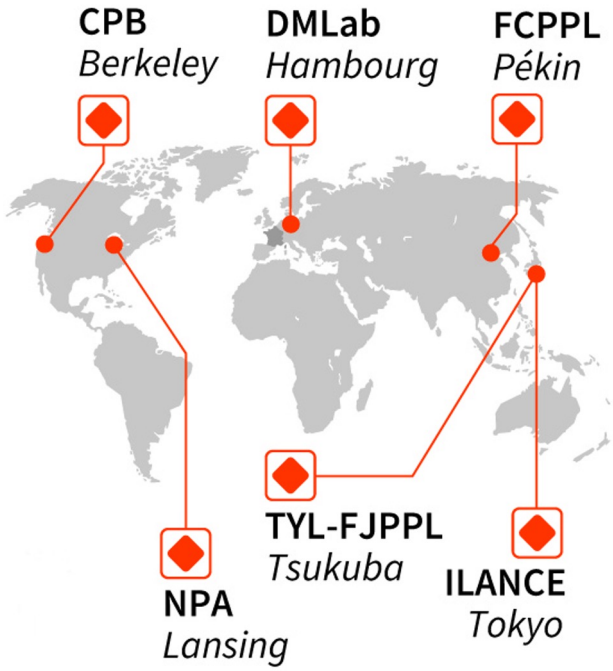
450
PhD students



IN2P3: a distributed institute





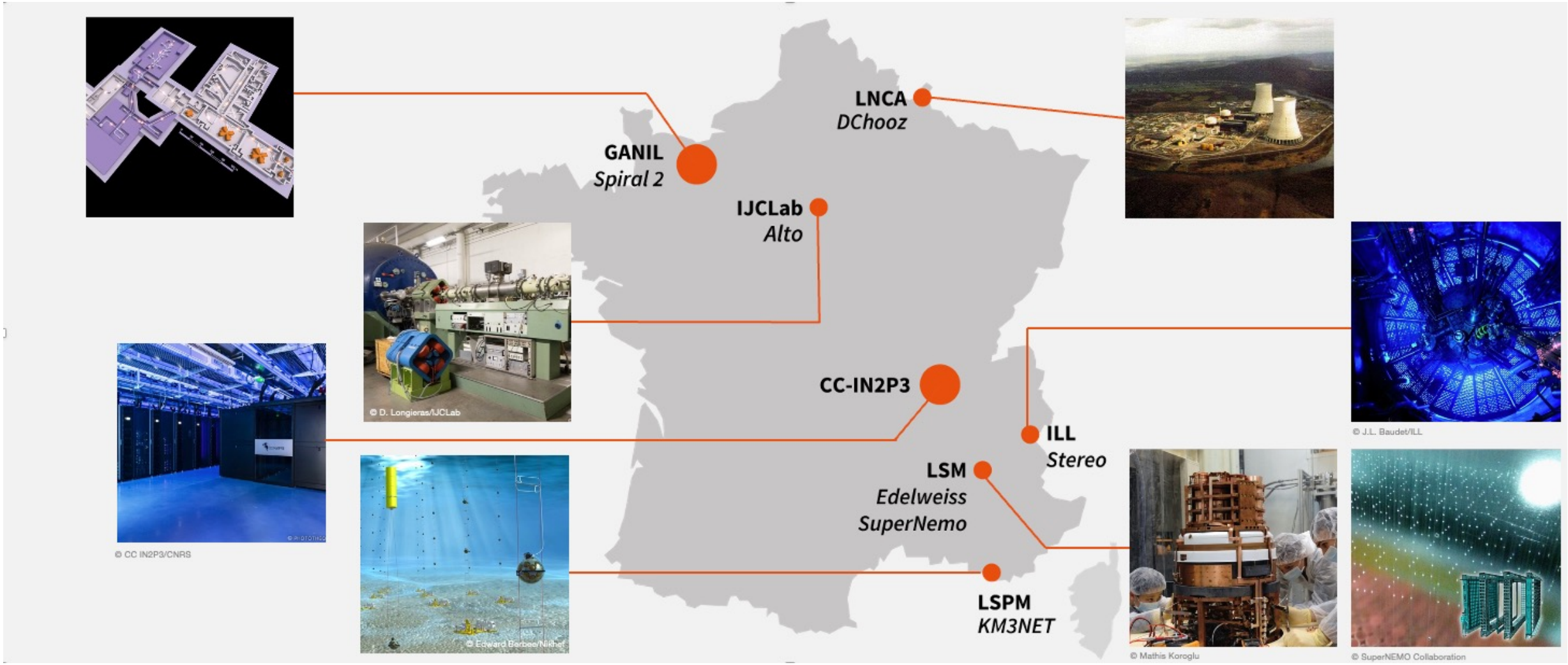


15 labs (joint research units)

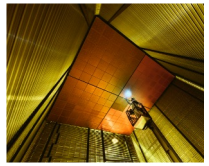
10 infrastructure / support units

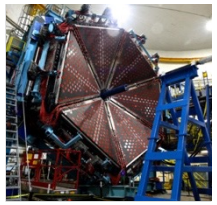
5 labs abroad w/ foreign universities
(2 more soon: @ Chicago w/ U Chicago & FNAL,
@ Vancouver w / TRIUMPH)

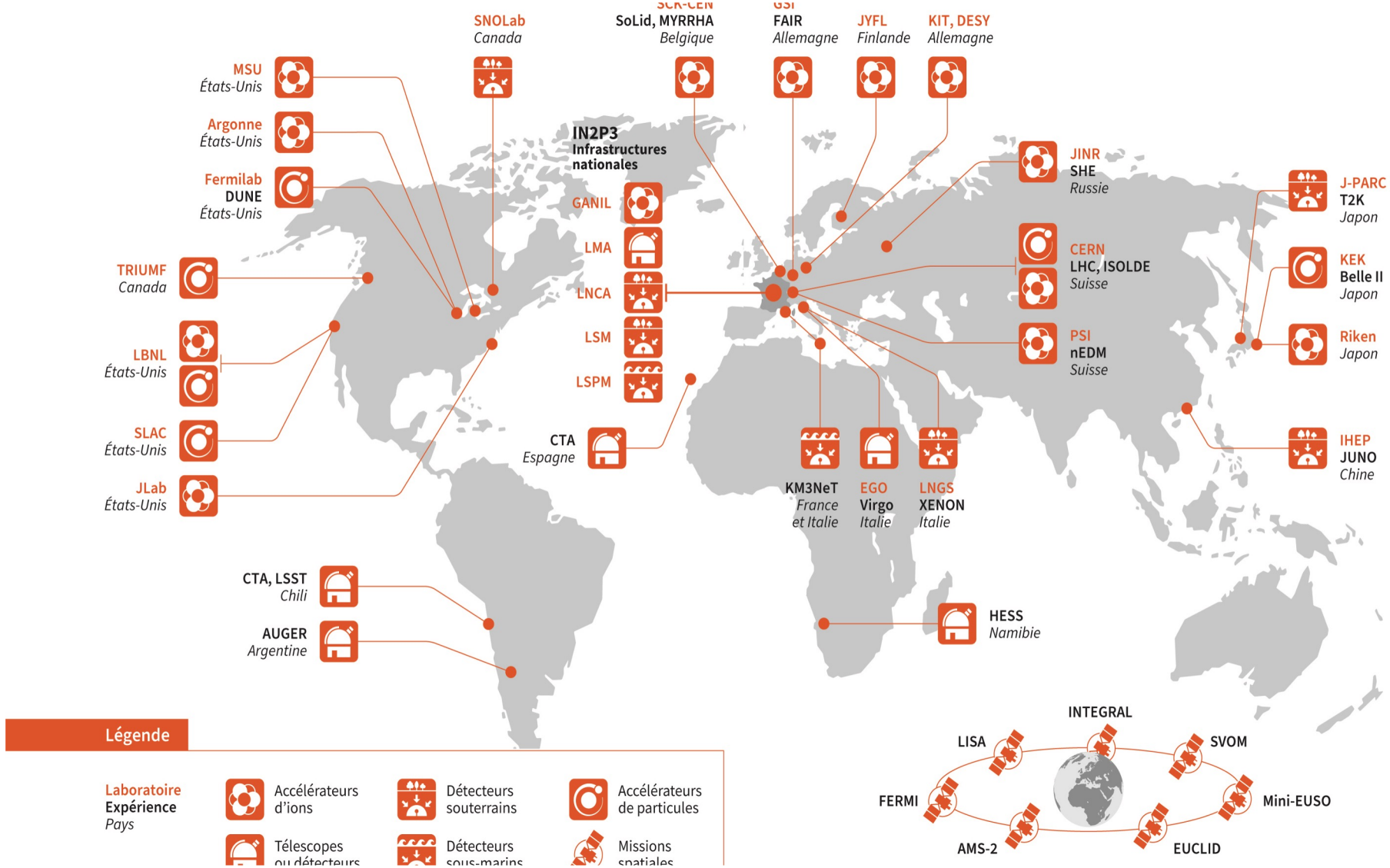
IN2P3: research infrastructures in France

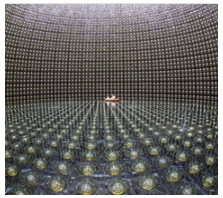


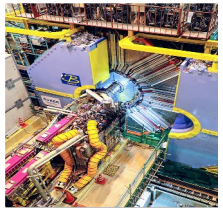
Infrastructures worldwide with IN2P3 participation

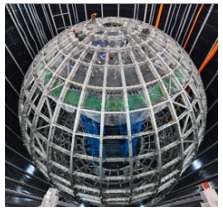












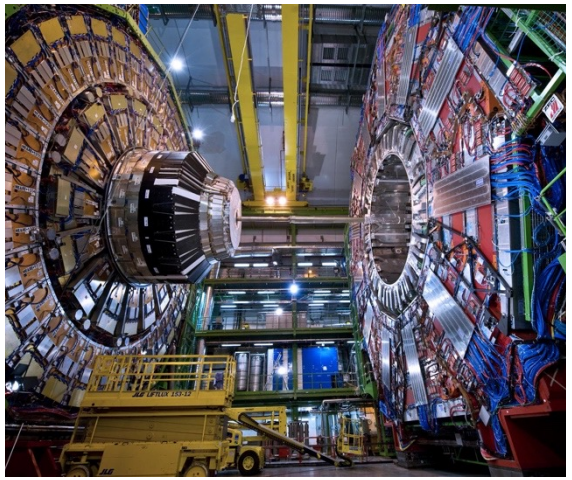
Particle physics & hadronic physics

Elementary constituents & fundamental interactions

- Search for physics beyond the SM
- Higgs boson full characterization
- Matter/antimatter assymetry
- Quark-gluon interactions
- Neutrinos from accelerators & reactors
- Precision measurements
- Tests of fundamental interactions

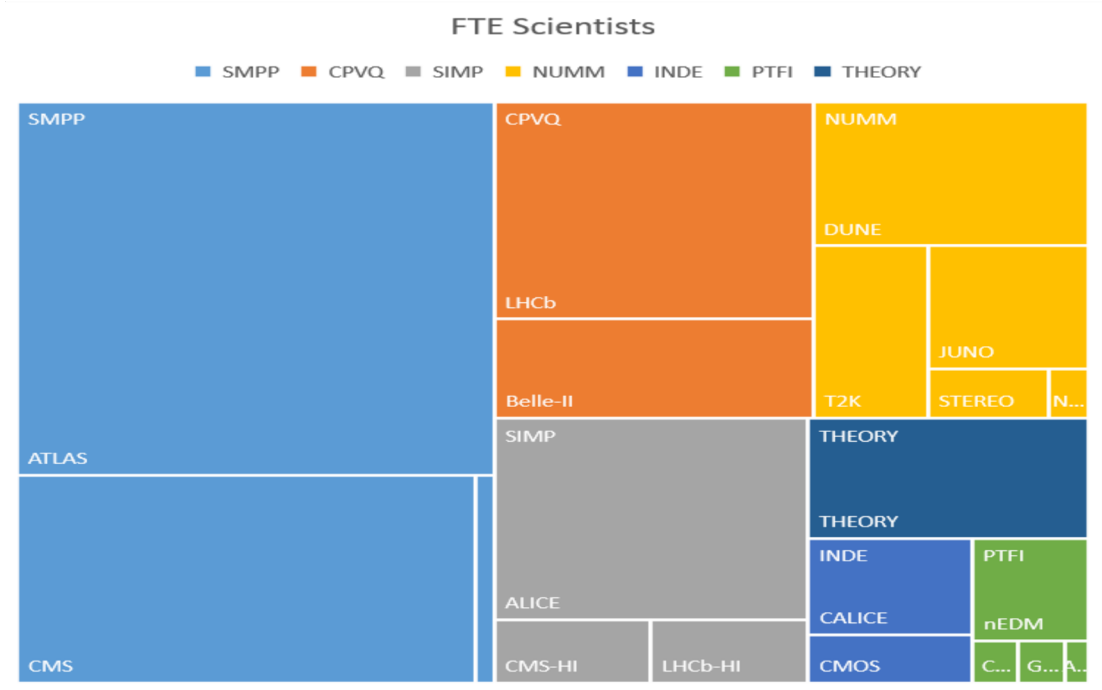
Priorities :

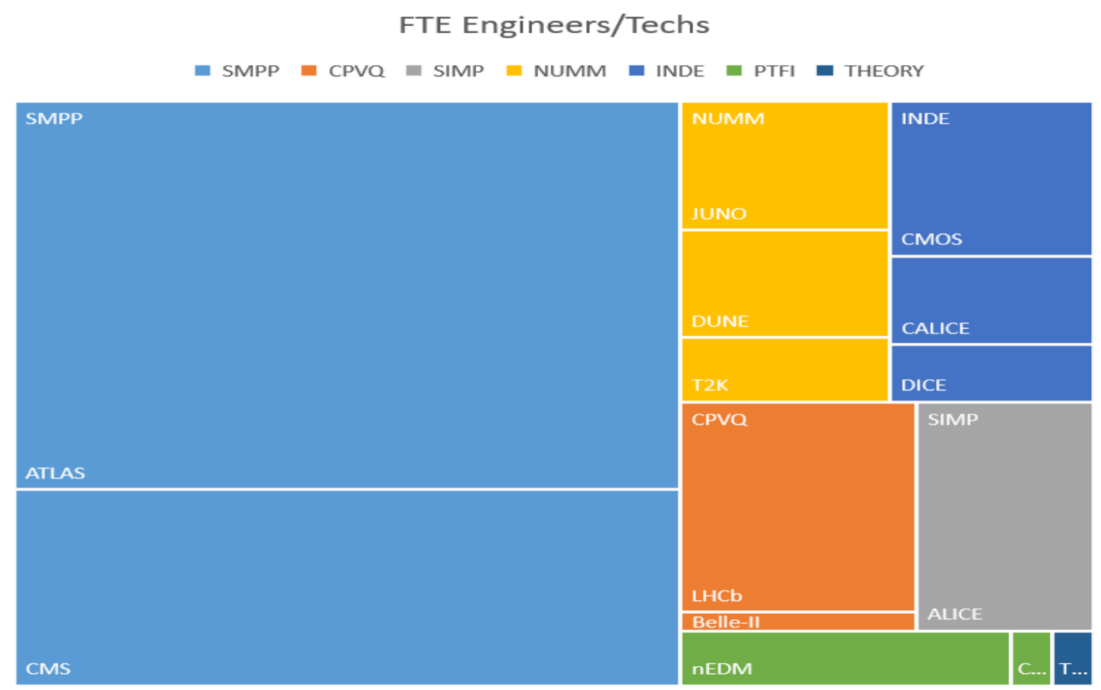
- 4 main LHC experiments and their upgrades
- Neutrino Long Baseline (DUNE)



Particle physics @ IN2P3: the portfolio

- 6 scientific programs, 35 master-projects
- 70 research teams in 17 labs
- 450 physicists : 200 CNRS, 100 faculty, 100 postdocs, 50 PhD students
- 450 engineers & technicians





Top quark @ IN2P3: theory, ATLAS, CMS (and beyond...)

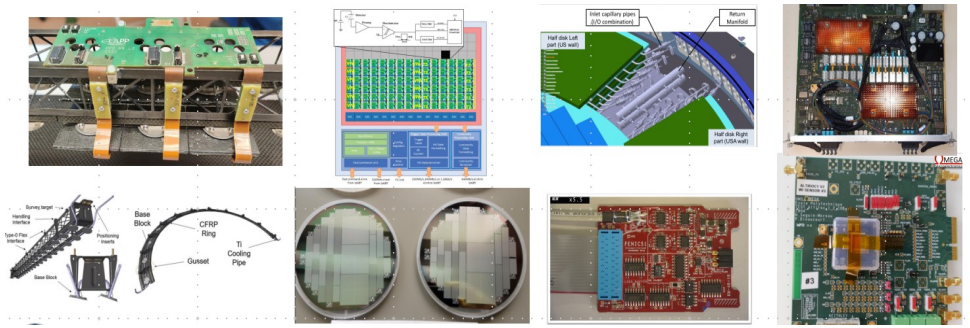
ATLAS: 8 labs, 120 physicists (incl. postdocs & PhD students) — Pixels, LAr, Tilecal, DAQ | +HGTD

CMS: 3 labs, 75 physicists — Tracker, ECAL, Muon | +HGCAL

+ CC-IN2P3 (computing center, LHC T1) + Omega (microelectronics) + AICP (support unit @ CERN)

- Next upgrades for **HL-LHC** :
  - major work on Phase 2 ATLAS & CMS for HL-LHC
    - 250 FTE engineers & techs
    - investment of 53 M€ CORE, special IR* credits
    - mostly at pre-prod/early prod stage now

- **FCC** feasibility study :
  - FR has set up an inter-ministery committee
  - aim : follow closely & prepare FR position/decision
- **ESPPU** process : community getting ready
- **NB: ECFA Higgs Factory workshop in Paris : 9-11 oct**



Have a fruitful conference
and
enjoy Saint-Malo !