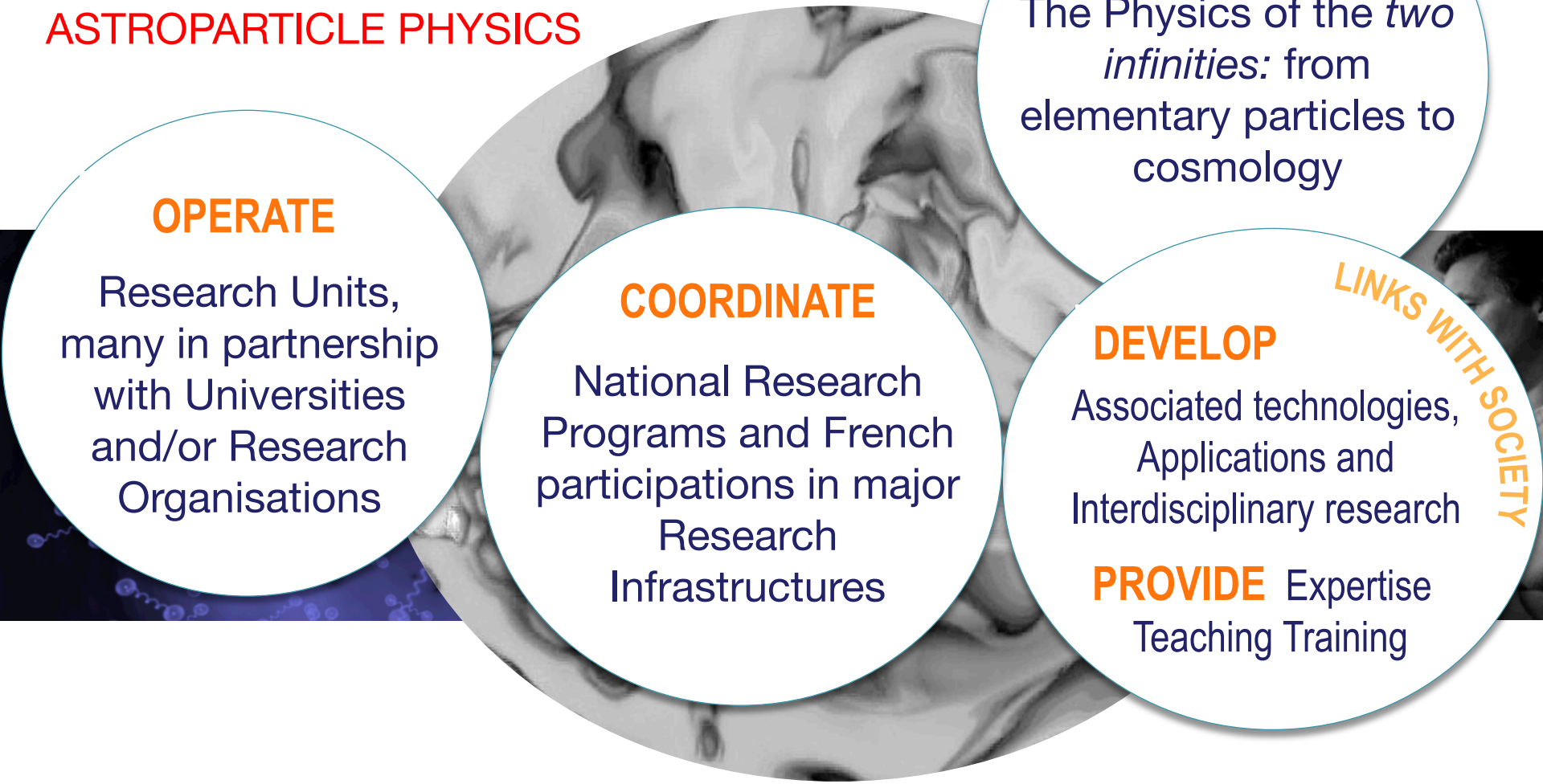
IN2P3 : a national institute

MISSION : COORDINATE RESEARCH IN THE FIELDS OF NUCLEAR, PARTICLE and ASTROPARTICLE PHYSICS



EXPLORE

The Physics of the *two infinities:* from elementary particles to cosmology

OPERATE

Research Units, many in partnership with Universities and/or Research Organisations

COORDINATE

National Research Programs and French participations in major Research Infrastructures

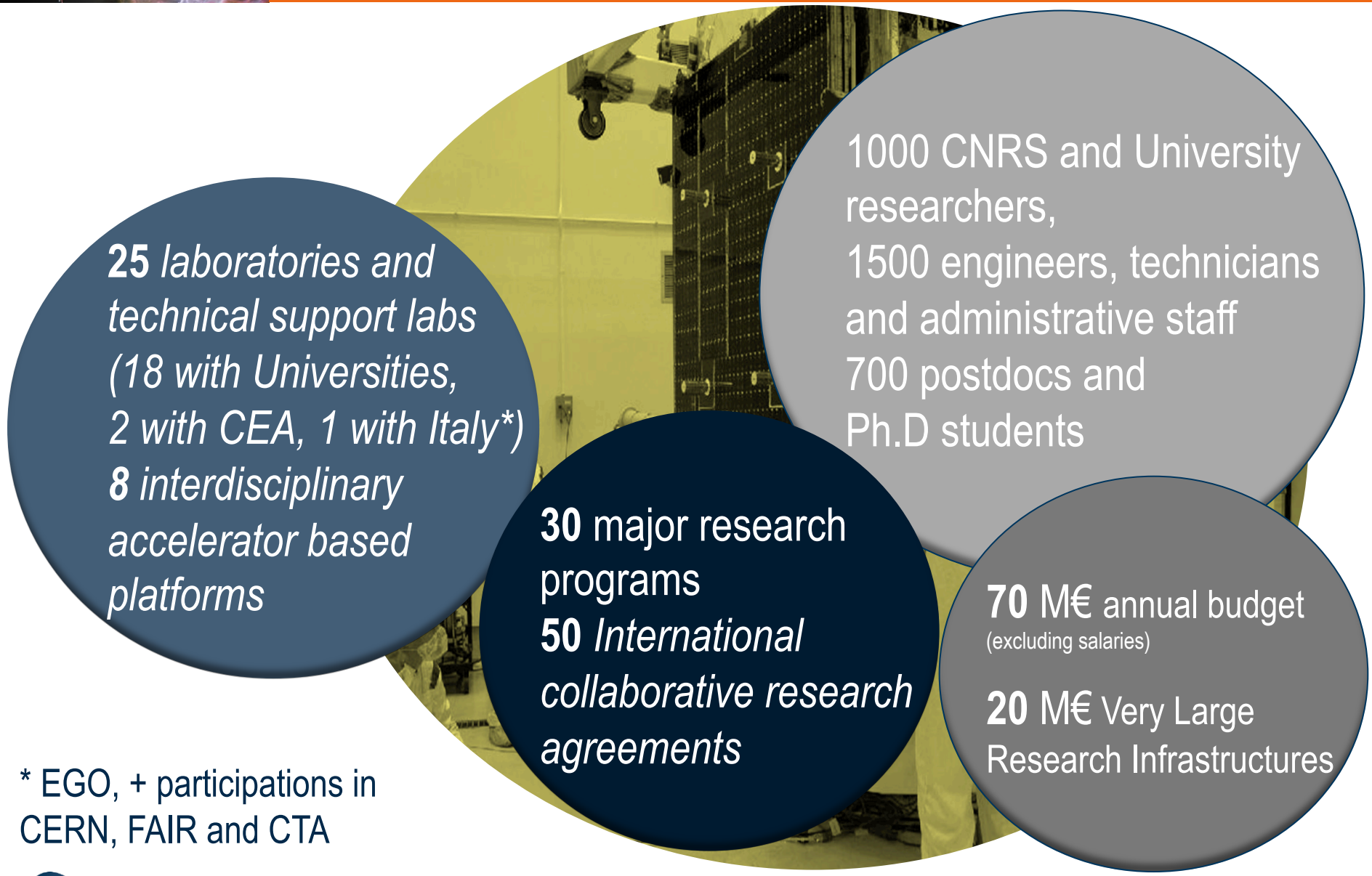
DEVELOP

Associated technologies, Applications and Interdisciplinary research

PROVIDE Expertise
Teaching Training

LINKS WITH SOCIETY

Key Figures



25 *laboratories and technical support labs (18 with Universities, 2 with CEA, 1 with Italy*)*
8 *interdisciplinary accelerator based platforms*

1000 CNRS and University researchers,
1500 engineers, technicians and administrative staff
700 postdocs and Ph.D students

30 major research programs
50 *International collaborative research agreements*

70 M€ annual budget
(excluding salaries)

20 M€ Very Large Research Infrastructures

* EGO, + participations in CERN, FAIR and CTA

Research Areas

Particles & hadronic physics

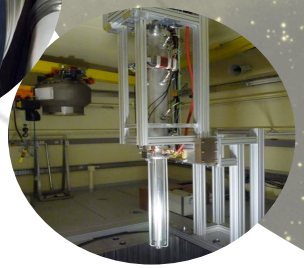
Matter's most elementary constituents and fundamental interactions

Nuclear physics & Applications

Structure of nuclear matter, nuclear energy and medical applications

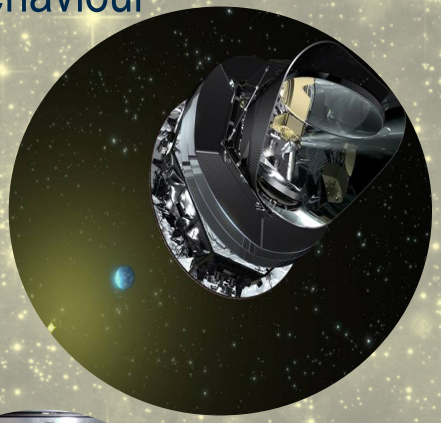
Accelerator & Technology

Major R&D domains



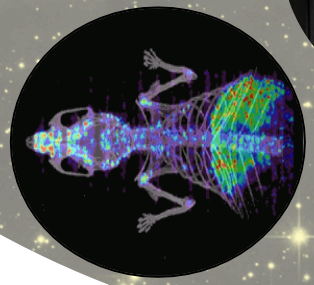
Astroparticle physics and Cosmology

Universe's composition and behaviour

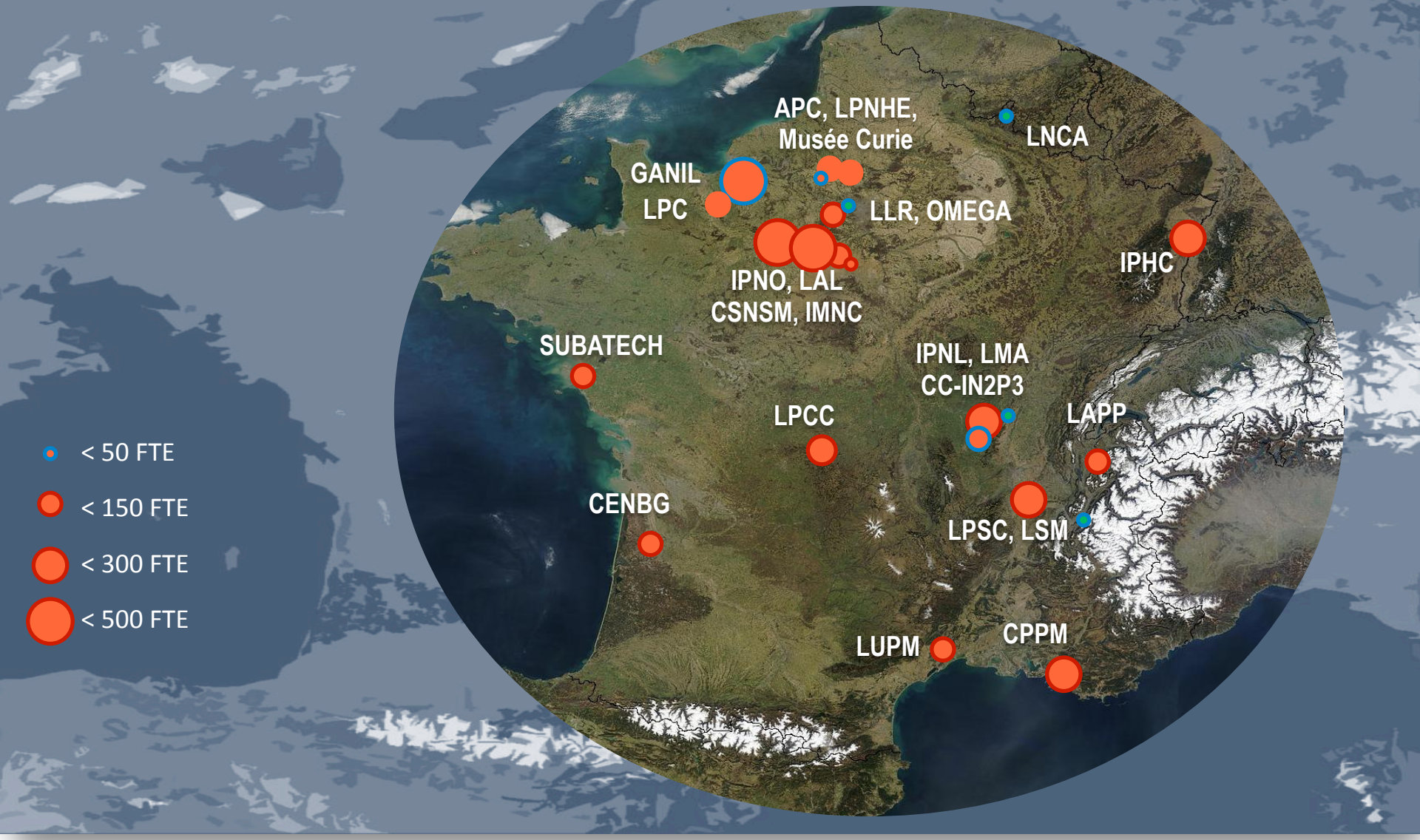


Computing & Data

Data Science and Computing research

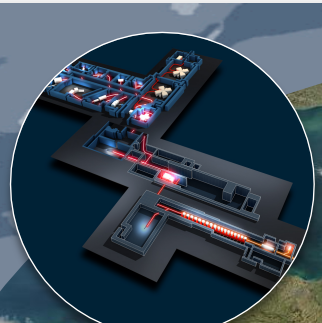


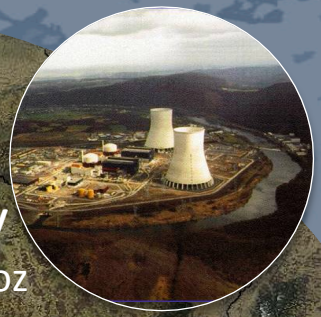
IN2P3 : A “distributed” laboratory



IN2P3 : A “distributed” laboratory

Research infrastructures in France

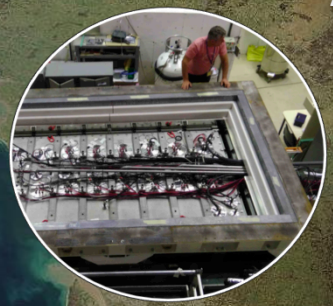




GANIL /Spiral2

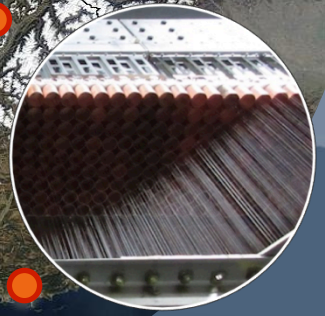
IPNO/
Alto

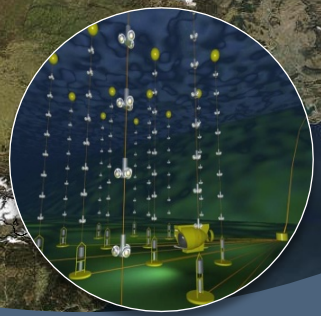
LNCA/
DChooz



ILL / Stereo

LSM / Edelweiss, SuperNemo





CPPM / Antares, KM3NET

European Research Infrastructures

Jyväskylä (Finland)

JINR / SHE

SCK-CEN/ SoLid, Myrrha (Belgium)

GSI / FAIR (Germany)

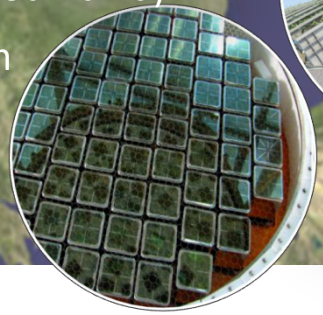
PSI / nEDM (Switzerland)

CERN / LHC, ISOLDE

EGO / Virgo (Italy)

ELI-NP (Roumania)

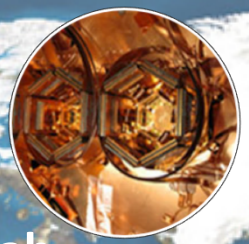
LNGS / Xenon (Italy)



2P3

© Cern, Nasa, Opera, GSI, JINR Dubna, Profilmedia

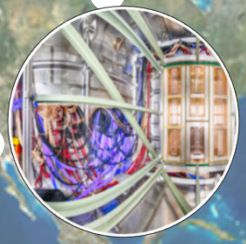
International Research Infrastructures



SNOLab

Fermilab

TRIUMF



LBNL

SLAC

JLab

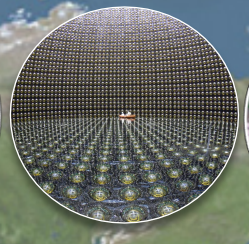
CTA

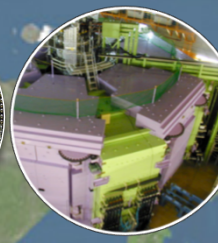
(Espagne)

HESS (Namibie)

LSST, CTA (Chili)

Auger (Argentine)

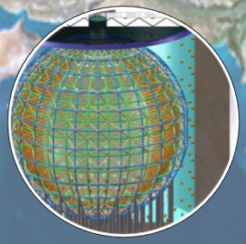




KEK : Belle II; J-PARC, Kamioka: T2K

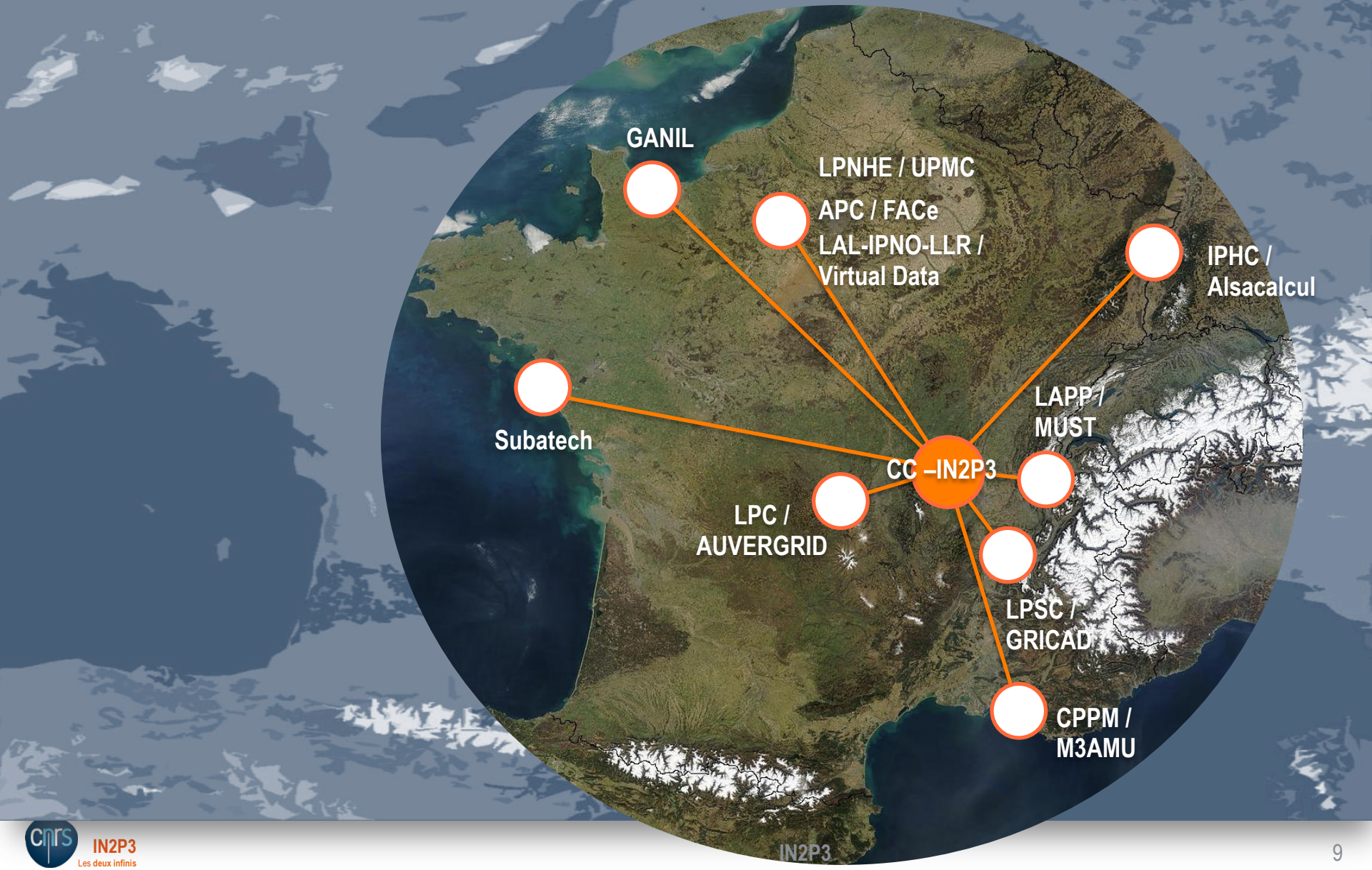
ICRR, Riken Nishina (Japon)

IHEP, JUNO (Chine)



AMS, FERMI, LISApathfinder, Euclid, INTEGRAL, SVOM, LISA (Space)

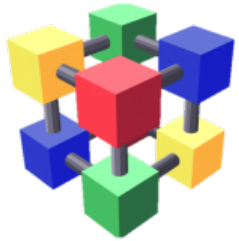
IN2P3 computing infrastructure



Computing Challenges

- Particle physics

  10% WLCG, future: Belle-II



- Astroparticle physics

  AMS-2, Planck, Fermi, HESS, Antares

  Future: Euclid (30%), LSST (50%), CTA, SVOM, KM3NeT

- Nuclear physics

  Future: Spiral-2 / S^3 @ GANIL

Computing Infrastructure

- Common and shared infrastructure at IN2P3
- 470 kHS06*, 65 PByte disk, 40 PByte tape storage
- Planned investment in computing h/w 2019: ~ 5,5 MEuros
- Network: RENATER

* Corresponds to ~47 000 cores or ~0,5 Pflops

Institut national de physique nucléaire et de physique des particules

www.in2p3.fr

Thank you!

Additional slides
matériel supplémentaire
noch mehr Folien
materiale aggiuntivo
aanvullend materiaal

LHC Computing Grid (LCG) France

Tier-1 centre (CC-IN2P3 Lyon), 7 Tier-2, 1 site Tier 3, 10% of all WLCG computing

- ~ 35,000 cores, 23 FTE, IN2P3 LCG-France h/w budget: 2 M€/year
- ~ 1GB/s, 100 TB/day exchange with outside
- connection via LHCOne and LHCOPN provided by RENATER

Participation IN2P3: 100% Tier-1, 70% Tier-2 (rest: regional resources, university, Europe, …)