



PARIS Workshop 2011

January, 12-14

- The Institute IPHC
- Some project highlights



Subatomic
Research Department

Ecology, Physiology,
Ethology Department

Analytical
Science Department

Institut national de physique nucléaire et de physique des particules
Centre national de la recherche scientifique

Institut écologie et environnement
Centre national de la recherche scientifique

Institut de chimie
Centre national de la recherche scientifique



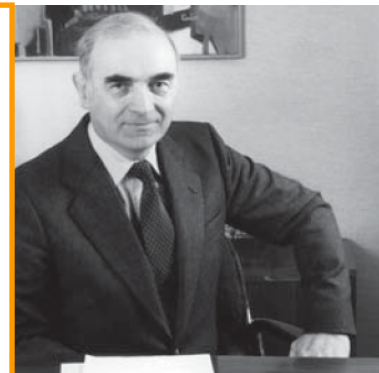
History

Created in 2006 from the fusion of 3 labs
to form a pluridisciplinary institute

- Biology (CEPE)
- Chemistry (LSMBO)
- Physics (IReS)

Hubert Curien (1924 – 2005)

- Physicist, chemist and crystallographer
(Gallium new crystalline form)
- General Director of CNRS (1969 – 1973)
- President of the CNES (1976 – 1984)
(Ariane program + “Fête de la science”)



Director : Christelle Roy
Deputy Director : Marc Rousseau

Laboratory Council
Scientific Council

CSHS Healthy and Security Special Comity
ACMO Assignment Manager for the Application
of Healthy and Security Rules
PCR Person competent in Radioprotection

DEPE

Ecology Physiology Ethology
Stéphane BLANC

Progressive Ethology

Adaptive Ecophysiology

Functional Ecophysiology

DRS

Subatomic Researches
Marc ROUSSEAU

Nuclear Physics at Low Energy
(CAN, Agata, Spiral2, Phy. Théor. Nucl.)

Physics at High Energy
(Alice, D0, CMS, Phy. Théor. H.E.)

Neutrinos
(Opera, DChooz, Antares)

Back-end of the Nuclear Fuel
Cycle (Gelina, NFS)

Biomedical Imaging

CMOS sensors and ILC

Nuclear Chemistry

RAMSES

DSA

Analytical Sciences and Ionic and
BioMolecular Interactions
Alain VAN DORSSELAER

Analytical Chemistry of BioActive
Molecules

Recognition and processes for
Molecular Sharing

Laboratory of Molecular
Engineering Applied to Analyses

BioOrganic Mass Spectroscopy

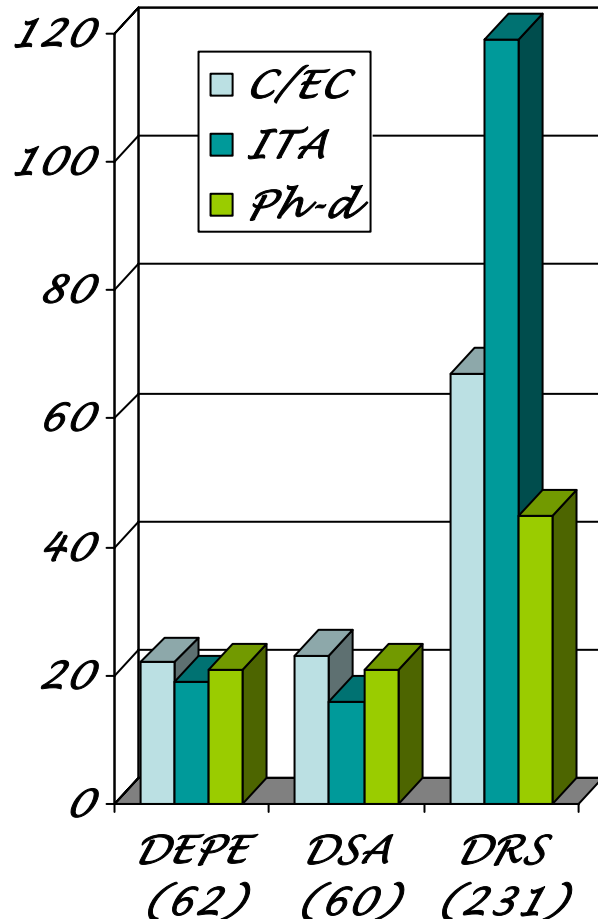
**Administration and
Technical Services**

Administration
Jean SCHIHIN

- Financial
- Missions
- Administrative logistic
- Logistic for building and transport
- Staff management
- Communication

Technical Services
Michel PELLICOLI

- Mechanics
- Microelectronics
- Microtechniques
- Computing
- Instrumentation
- Technical services of DEPE/DSA



387 individuals

266 permanents + 121 short-term contr. employees

- Researchers (from junior to senior level) : 60
 - DRS : 36, DEPE : 17, DSA : 7
 - <age> = 46,27
- Professors (from assistant to full level) : 52
 - DRS : 31, DEPE : 5, DSA : 16
 - <age> = 45,62
- Engineers/technicians/administrative staff : 154
 - DRS : 119, DEPE : 19, DSA : 16
 - <age> = 43,48
- PhD students : 87 (12/15/2010)
 - DRS : 45, DEPE : 21, DSA : 21
- CDD : 16 scientists + 18 eng./tech./adm.

IPHC : selection of key points

- ❑ 2006 – 2010 : 1400 publications (809 DRS, 335 DEPE, 250 DSA)
280 communications with proceedings
- ❑ Success in competitive grant attribution (ANR : 9th rank among French labs)
- ❑ 154 engineers/technicians and their impact in the project realization
 - Mean age of 43 years : follow-up for existing and future projects
 - The highest Engineers/Scientists ratio in Alsace
 - High-level technical infrastructures in biology/chemistry/physics
 - As the cornerstone of IPhC, instrumentation is the key of the success of pluridisciplinary researches
- ❑ Education :
 - PhD students 2010 : 85 registered and 22 defenses (11 DRS, 2 DSA, 9 DEPE)
 - 5 master programs attached to 3 Graduate Schools of Strasbourg University
 - Subatomic Physics and Astroparticles (ED182)
 - Radiation Physics, Detectors, Instrumentation and Imaging (ED182)
 - Ecophysiology and Ethology (ED414)
 - Analytical Sciences (ED222)
 - Medicaments and Food Analysis (ED222)s

Instrumentation

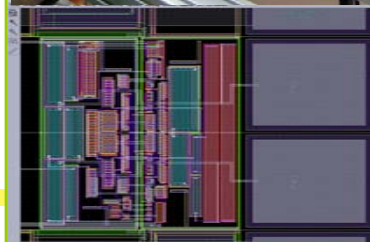
Technical skills

- Computing, mechanics, micro-techniques, electronics, micro-electronics
- Instrumentation for pluridisciplinary, metrology and instrumentation for the living



Equipments and platforms

- Detectors for nuclear and particle physics (Ge, Si, CMOS, ...)
- Platform for the imaging of small animals
- Computing grid (550To, 1200 cores)
- Biologgers
- Mass spectroscopy
- Cyclotron



Theor. Nucl. Phys – F. Nowacki

Theor. Part. Phys – M. Rausch

CAN – L. Stuttgé

SPIRAL 2 – M. Rousseau

AGATA – G. Duchêne

ALICE – C. Kuhn

DØ – I. Ripp-Baudot

CMS – D. Bloch

OPERA/DChooz/Antares – M. Dracos

Nuclear chemistry – R. Barillon

RAMSES – A. Nourreddine

GRACE – P. Dessagne

ImaBio – D. Brasse

CMOS sensors & ILC – M. Winter

} Theory

} Low energy nuclear physics

} High energy physics

} Neutrino physics

} Nuclear chemistry

} Back-end of the nuclear fuel cycle

} Imaging for medicine

} Development of innovative sensors



From the most applied to the most fundamental

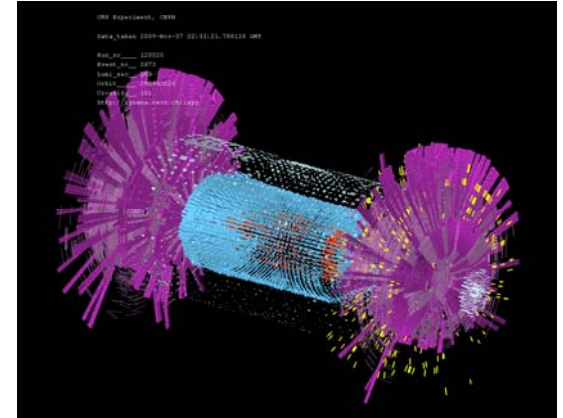
Particle and Astroparticle Physics

CMS – D0

OPERA – Dchooz – Antares

CMOS – ILC

Particle Physics Theory



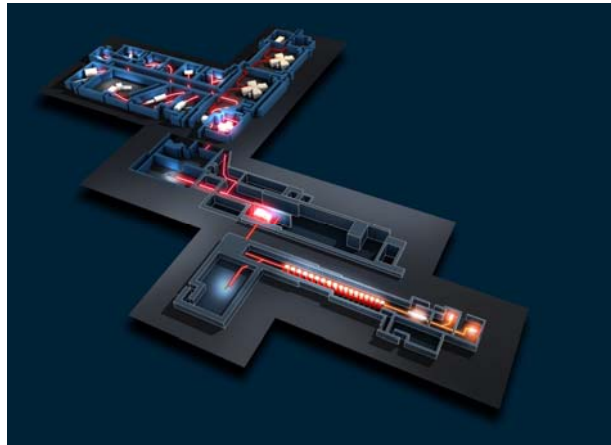
Nuclear Physics

SPIRAL2

AGATA – S3 – PARIS

ALICE

Nuclear Physics Theory



Interdisciplinary Researches

RAMSES : Radioprotection, Dosimetry

Nuclear Chemistry Research

GRACE : Downstream of the nuclear cycle

IMABIO : Biomedical imaging



Each group has its own staff of researchers, engineers and technicians

Subatomic
Research
Department

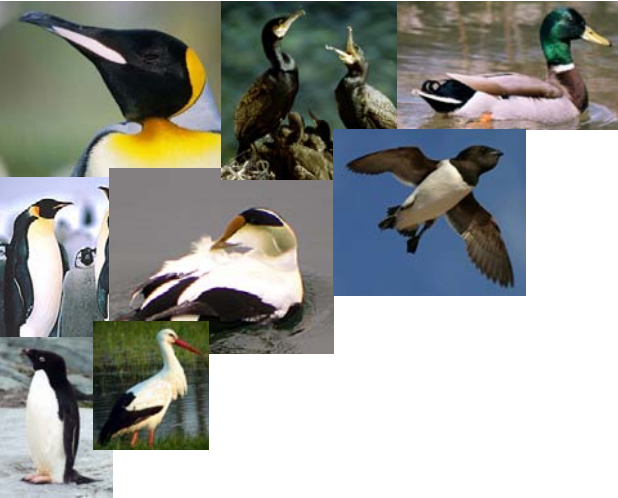
Ecology,
Physiology and
Etology
Department

Analytical
Science
Department

- ❑ Biologgers : DEPE – DRS
- ❑ Proteomic : DSA – DEPE – DRS
- ❑ Gel 2d fluoX (phosphor) : DRS – DSA
- ❑ Chemistry markers : DRS – DSA – DEPE

Three Main areas of study

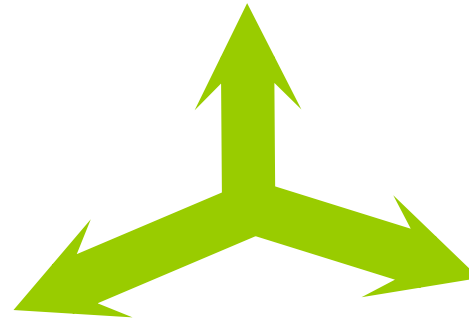
DEPE



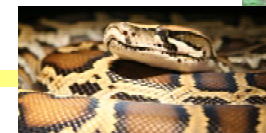
**Response of the animal to
environmental changes (climatic
variations and/or abundance of
food resources) or how they
anticipate these changes**



**Characterization of
adaptive mechanisms,
behavioral or physiological**



**Use of animals as
indicators of climate
change impacts on
food resources**



Study of the adaptation of animals
coping with environmental stresses

Monitoring of physiological variables, behavioral
and environmental conditions in the natural environment

Development
of
biologgers

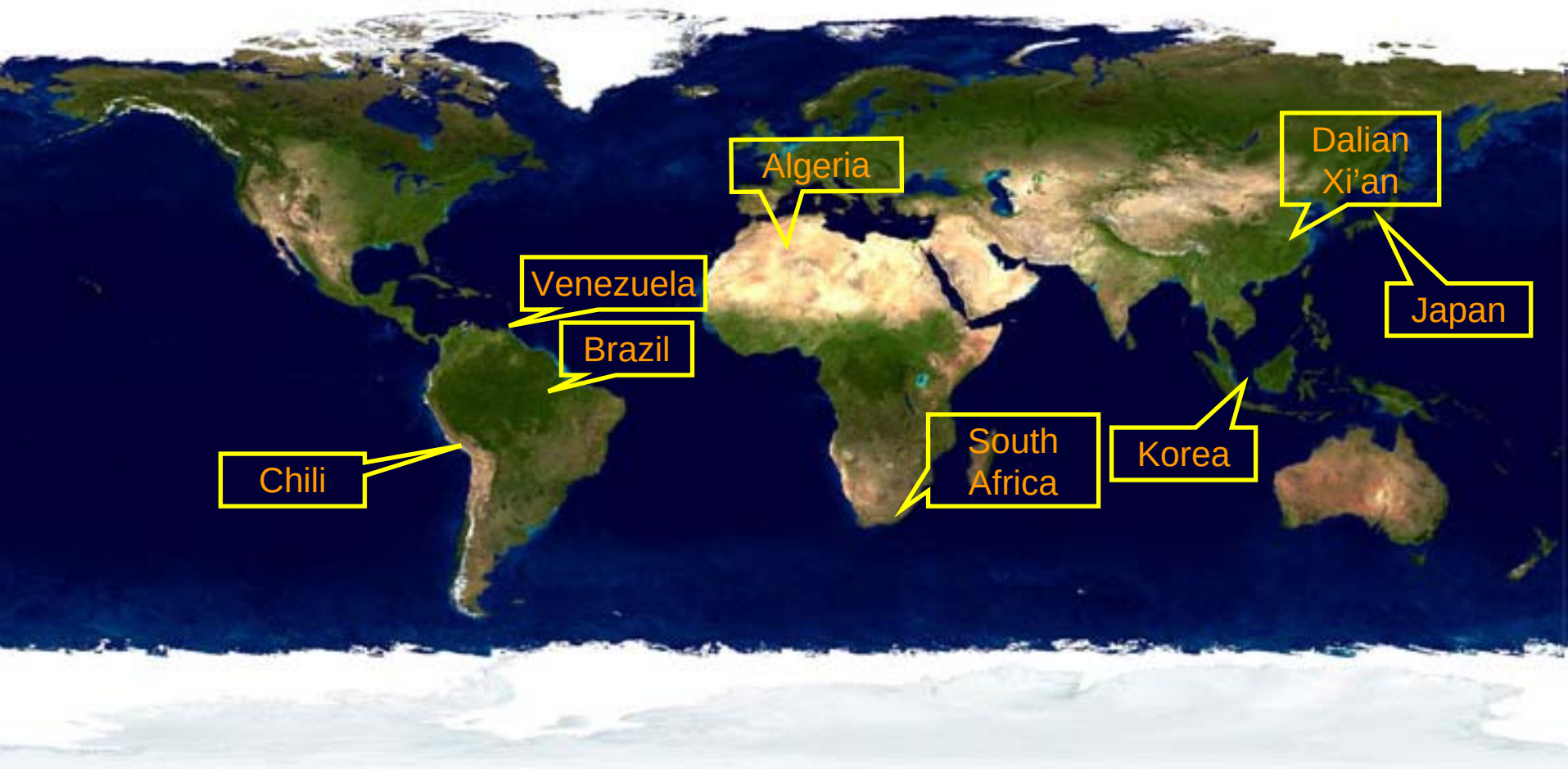


Adelie penguin
Dumont d'Urville base, Antarctica

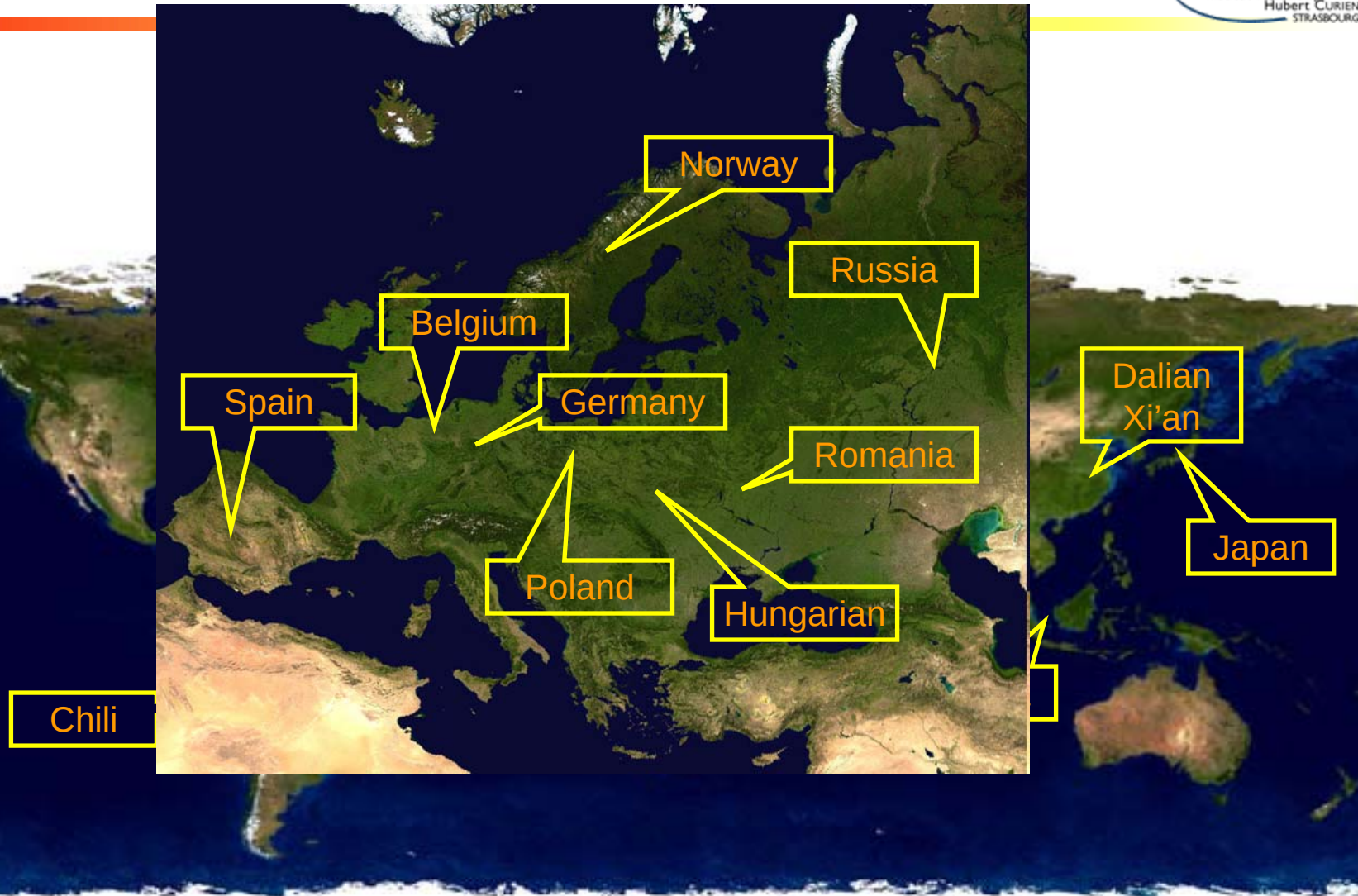


Luth tortles, Guyane

International links

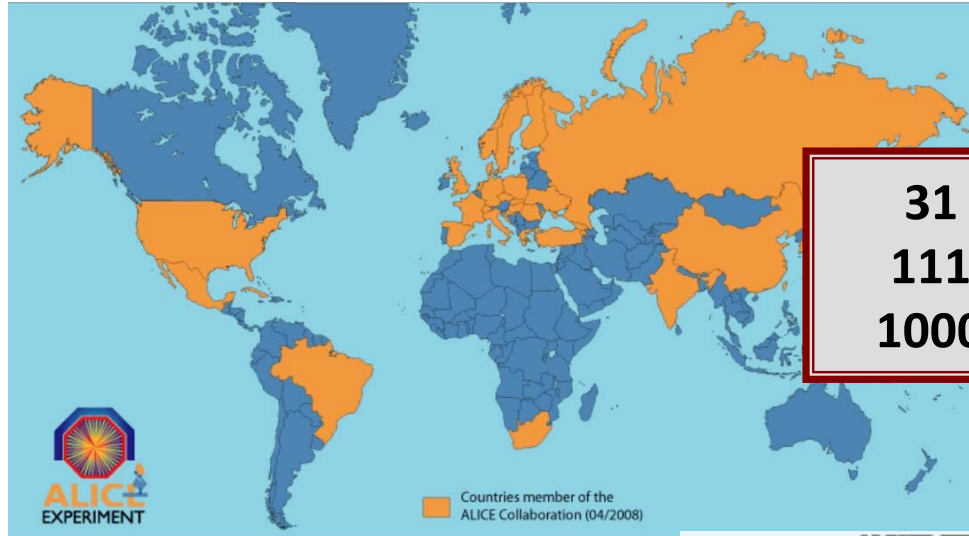


International links



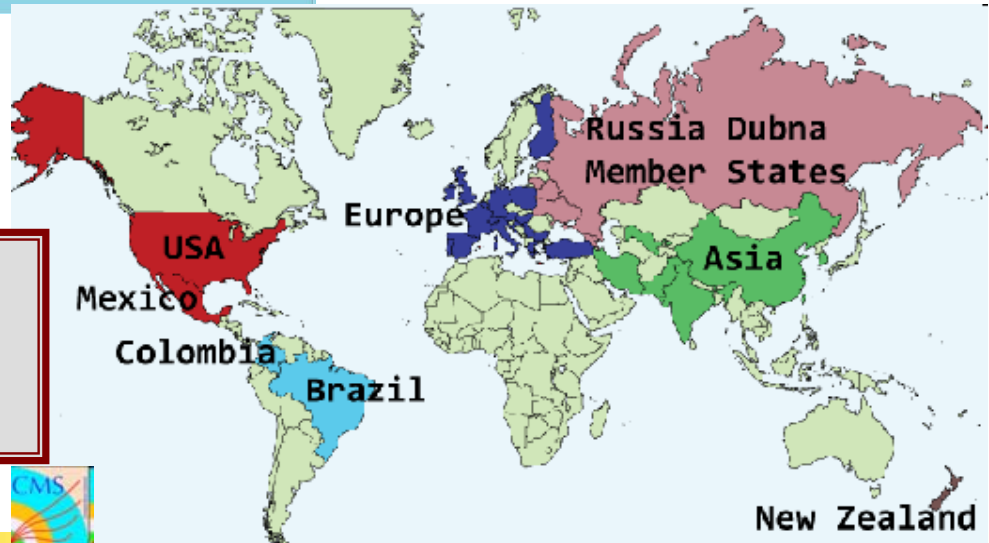
The « big » collaborations

Example : LHC Collaborations



**31 countries
111 institutes
1000 members**

**36 countries
183 institutes
3000 members**





ipHC

Institut Pluridisciplinaire
Hubert CURIEN
STRASBOURG



DRS **DEPE** **DSA**

