

Sydney Galès & GANIL-SPIRAL2

Vision and achievements



TRIBUTE TO SYDNEY GALES
IJCLab, Orsay
December 15, 2025

Marek Lewitowicz

TRIBUTE TO SYDNEY GALES, IJCLab, Orsay,
December 15, 2025 - M. Lewitowicz

Sydney Galès & GANIL-SPIRAL2



- Sydney Galès became **Director of GANIL** (located in Caen, France) on 1 July 2005 for 7 year
- Sydney Galès together with Marcel Jacquemet (deputy director of GANIL and the project leader) oversaw the **SPIRAL2** project and the development of a new-generation stable-ion and radioactive-ion beam facility at GANIL.
- One of his main missions as director was to steer the laboratory during the construction of **SPIRAL2**, and to raise GANIL's profile as an internationally competitive infrastructure.
- He played a central role in creating international partnerships for GANIL-SPIRAL2.
- He was also deeply involved in shaping the **European nuclear physics research strategy**: he was the scientific coordinator of **NuPNET**, a European network of funding agencies and research institutions in nuclear physics.
- He also emphasized interdisciplinary applications: in his vision, GANIL was not only about fundamental nuclear physics but also about applied sciences (e.g., materials under irradiation and medical uses).
- He deeply transformed the internal organisation of GANIL and of the SPIRAL2 project.

Sydney Galès and SPIRAL2

2006 – signature of the convention of funding SPIRAL2 (Ministry, CEA, CNRS and local authorities in Normandy)





GANIL/SPIRAL1/SPIRAL2



GANIL/SPIRAL 1 today

DESIR Facility
low energy RIBS3 separator-
spectrometerNeutrons
For ScienceCIME cyclotron RIB at 1-20
AMeV (up to 9 AMeV for ff)

HRS+RFQ Cooler

RIB Production Cave
Up to 10^{14} fiss./sec.

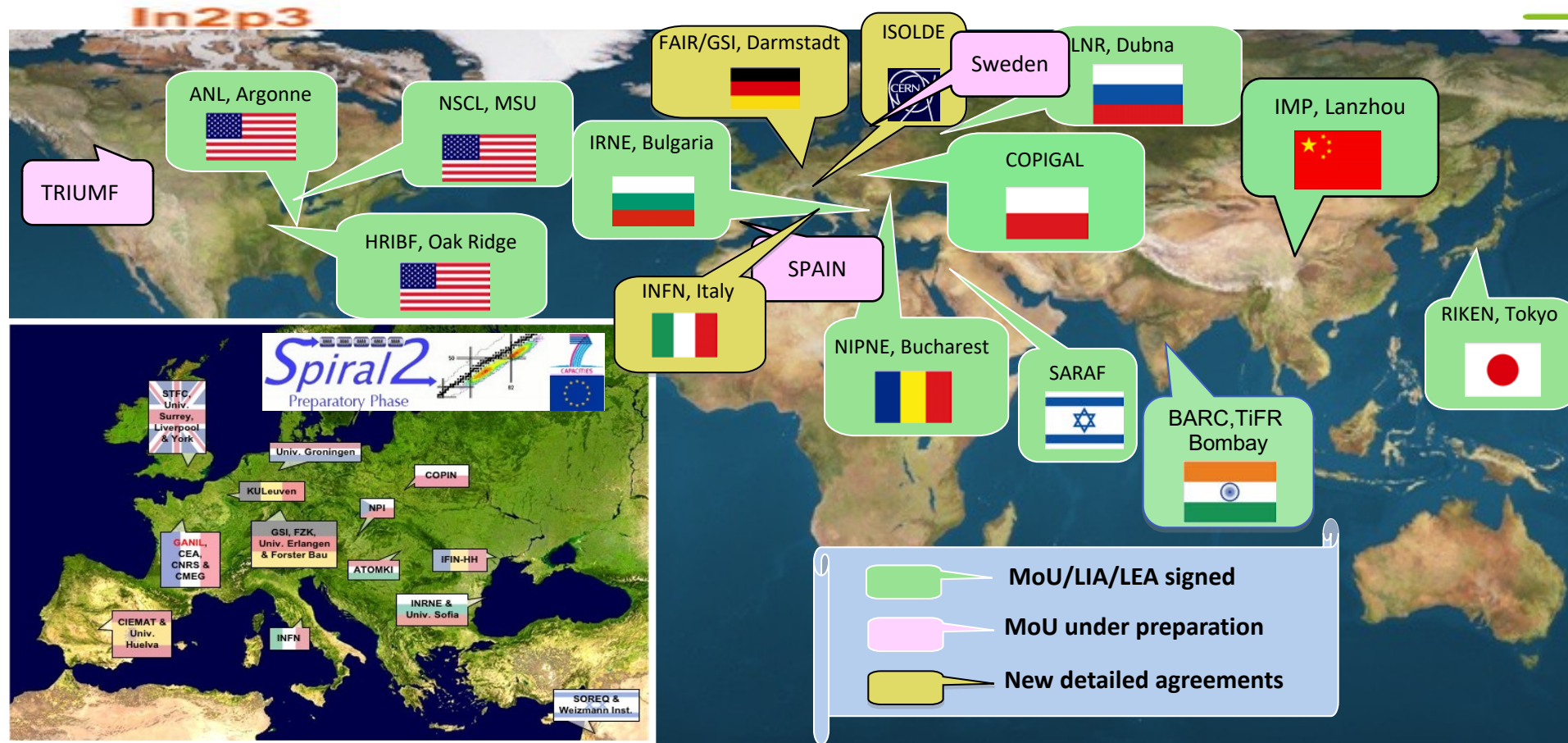
LINAC: 33MeV p, 40 MeV d, 14.5 A MeV HI

A/q=2 source
p, d, ^3He , ^4He 5mAA/q=3 HI source
Up to 1mA

Construction 2006-2014
200M€ cout complet
Complexe accélérateur unique au
monde GANIL+SP 2
5 expts en Parallèle /
2 expts » exotique » en parallèle
Utilisateurs>1000



International Collaborations



15 signed (LEA*, LIA**, MoU***) agreements
3 agreements under preparation:

- MoU with GSI (FAIR)
- MoU with Bilbao (RIB production module)
- MoU with Sweden (MEDLEY detector for NFS)

21-22/09/10 LIA Workshop with India
22/09/10 Meeting with Sweden
8-9/11/10 Workshop with Dubna
15-19/11/10 LEA Workshop with SPES

Sydney Galès and SPIRAL2



2008 – signature of the convention COPIGAL with Poland



Sydney with personalities, friends and collaborators @ GANIL



**FUSTIPEN meeting
in Caen 2011**

US – France collaboration on theory of exotic nuclei

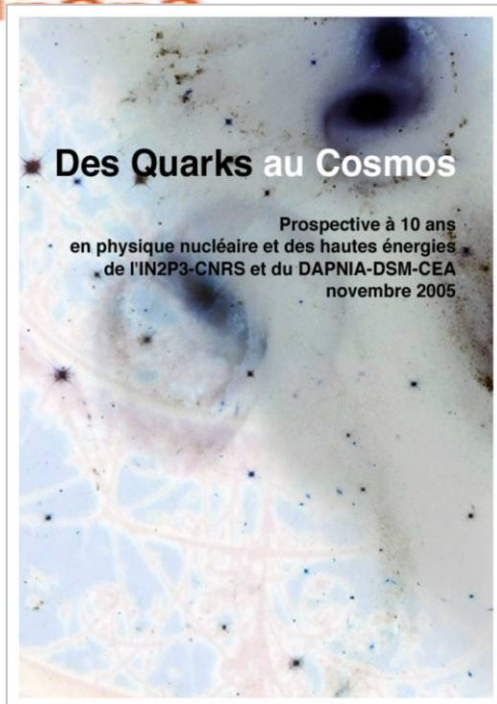


France-India meeting Mumbai 2011





French an European Roadmap



Prospective DAPNIA-IN2P3

**ESFRI Process
Nuclear Physics
FAIR & SPIRAL2
Selected!**

2006



Objectif 1 : **Faisceaux exotiques**

Exploiter le GANIL et diversifier les faisceaux de SPIRAL. Construire SPIRAL2 et faire du GANIL un complexe multi-faisceaux.

Objectif 2 : **Structure nucléaire**

Préparer EURISOL et réaliser AGATA (multi-détecteur européen (2012)).

•Physics and Astronomy

5 projects selected

•Two Complementary approaches:

=> FAIR @GSI Darmstadt

Fragmentation at high energy , at the limit

=> SPIRAL-2 @GANIL-Caen

ISOL-method –Intense RIB –
Good optics- Post accelerated beams

Sydney Galès and SPIRAL2



2011 – Laying the first foundation stone of SPIRAL2



SPIRAL2 LINAC and the new experimental rooms

GANIL

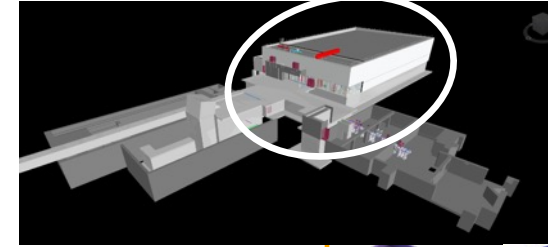
EXPERIMENTAL ROOM NFS
(NEUTRONS FOR SCIENCE)



Convertor room



Time of Flight room



EXPERIMENTAL ROOM
DESIR
(Desintegration,
Excitation and Storage
of Radioactive Ions)



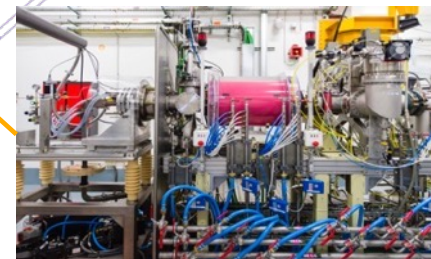
LINEAR accelerator (LINAC)



EXPERIMENTAL ROOM S3
(SUPER SEPARATOR
SPECTROMETER)



NEWGAIN
NEW GANIL INJECTOR

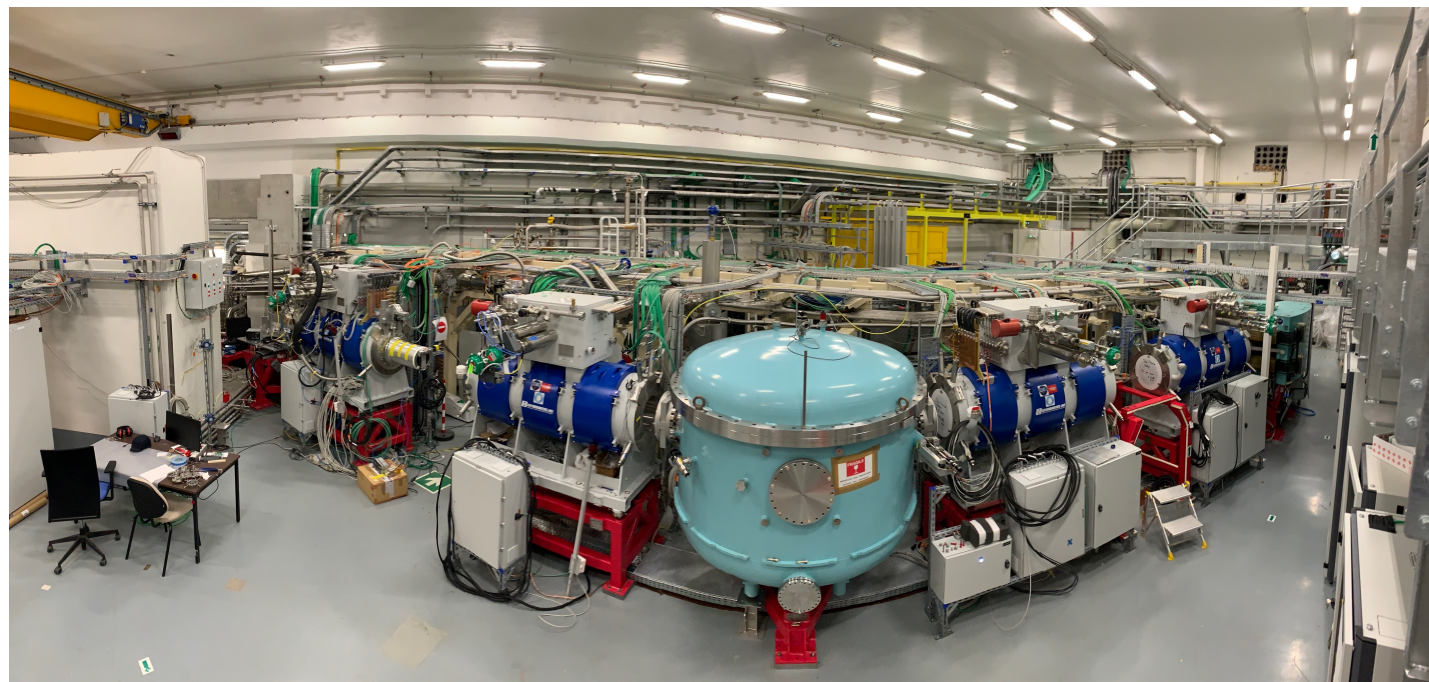


ION SOURCE

High intensity beams :
5 mA, 33 MeV protons
5 mA, 40 MeV deuterons
1 mA, <14,5 MeV/u heavy ions

Decisive role of Sydney
in accepting this project
by the funding agencies

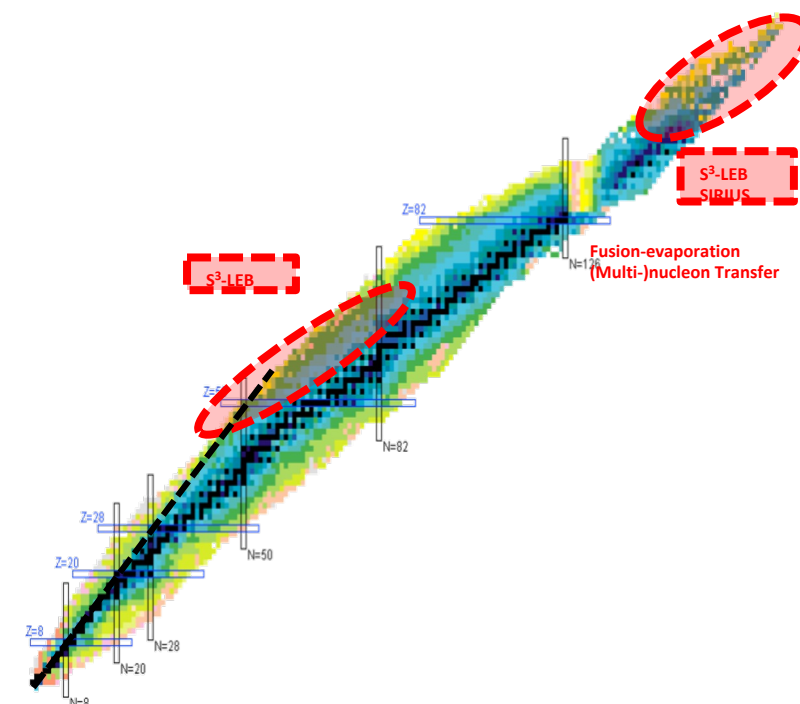
S³ : Super Separator Spectrometer



A spectrometer with state-of-the-art performances

First beam on target 2024

First experiments 2026-2027



Decisive role of Sydney in accepting this project by the funding agencies

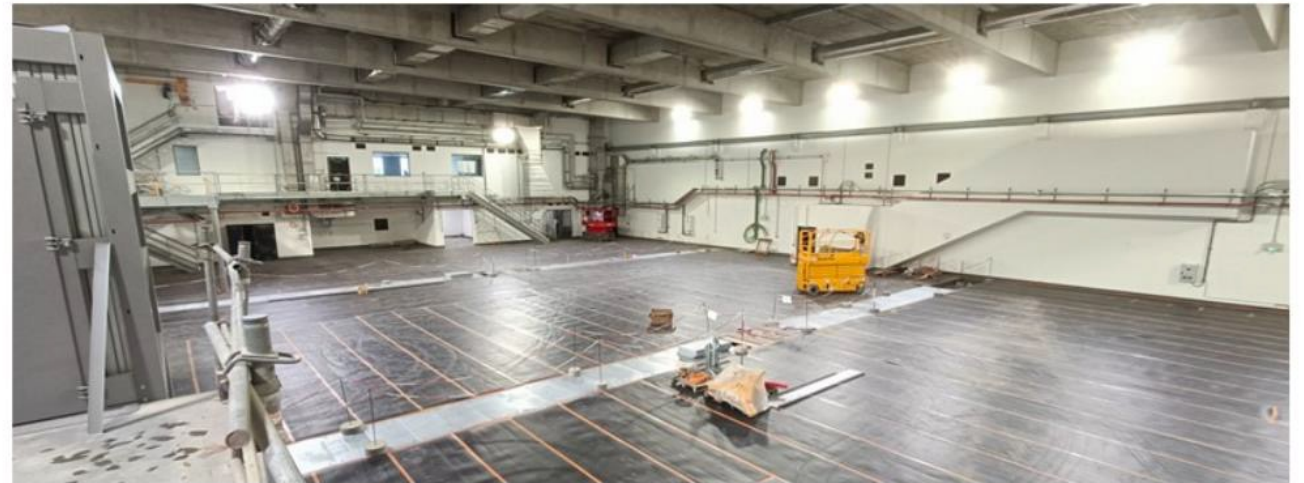
DESIR

Decisive role of Sydney in accepting this project by the funding agencies

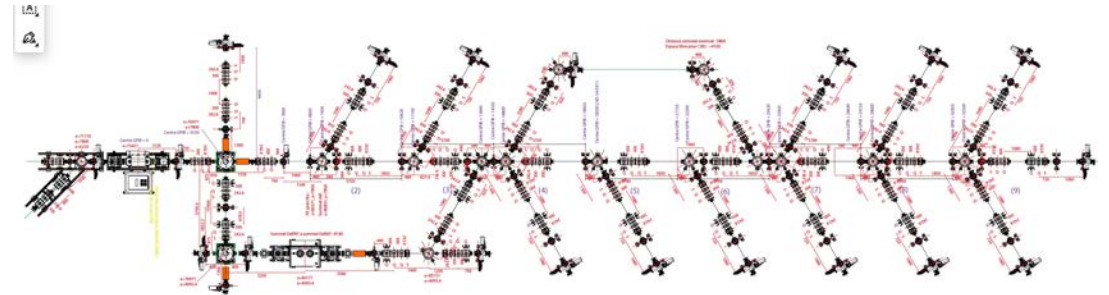
GANIL



- Site inauguration November 2023
- Start of the transfer of the building to GANIL September 2025
- First stable beams 2027
- First experiments 2028



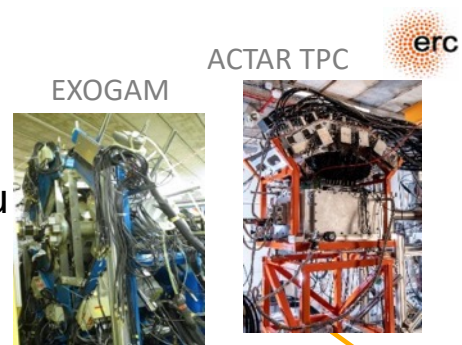
- Beams from SPIRAL1 and S3
- Important beam preparation and purification capabilities
- High resolution and high precision experiments
- Studies of fundamental properties of nuclei:
masses, lifetimes, decay modes, spin, quadrupolar moments...
- Nucleosynthesis
- Fundamental interactions, study of weak interaction



GANIL cyclotrons, experimental halls & detectors



- 5 cyclotrons
- Stable beams: ^{12}C à U
- Energy : from <1 MeV/u up to 95MeV/u
- SPIRAL1 radioactive ion beams
- Up to 4 experiments in parallel



Porte échantillon pour irradiation



MUST2/MUGAST



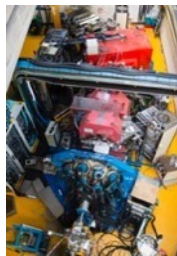
LISE SPECTROMETER



INDRA + FAZIA



SOURCES



VAMOS



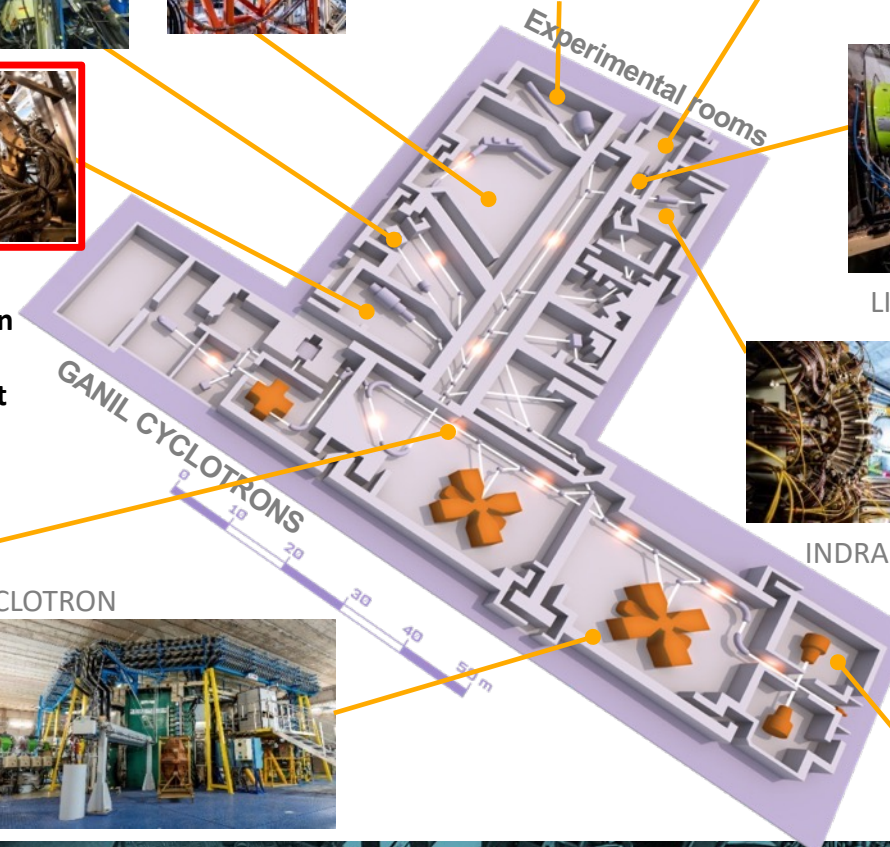
AGATA
2011 decision
on the
campaign at
GANIL



SISSI
Stopped operation
2008 decision of non-
replacement



CYCLOTRON

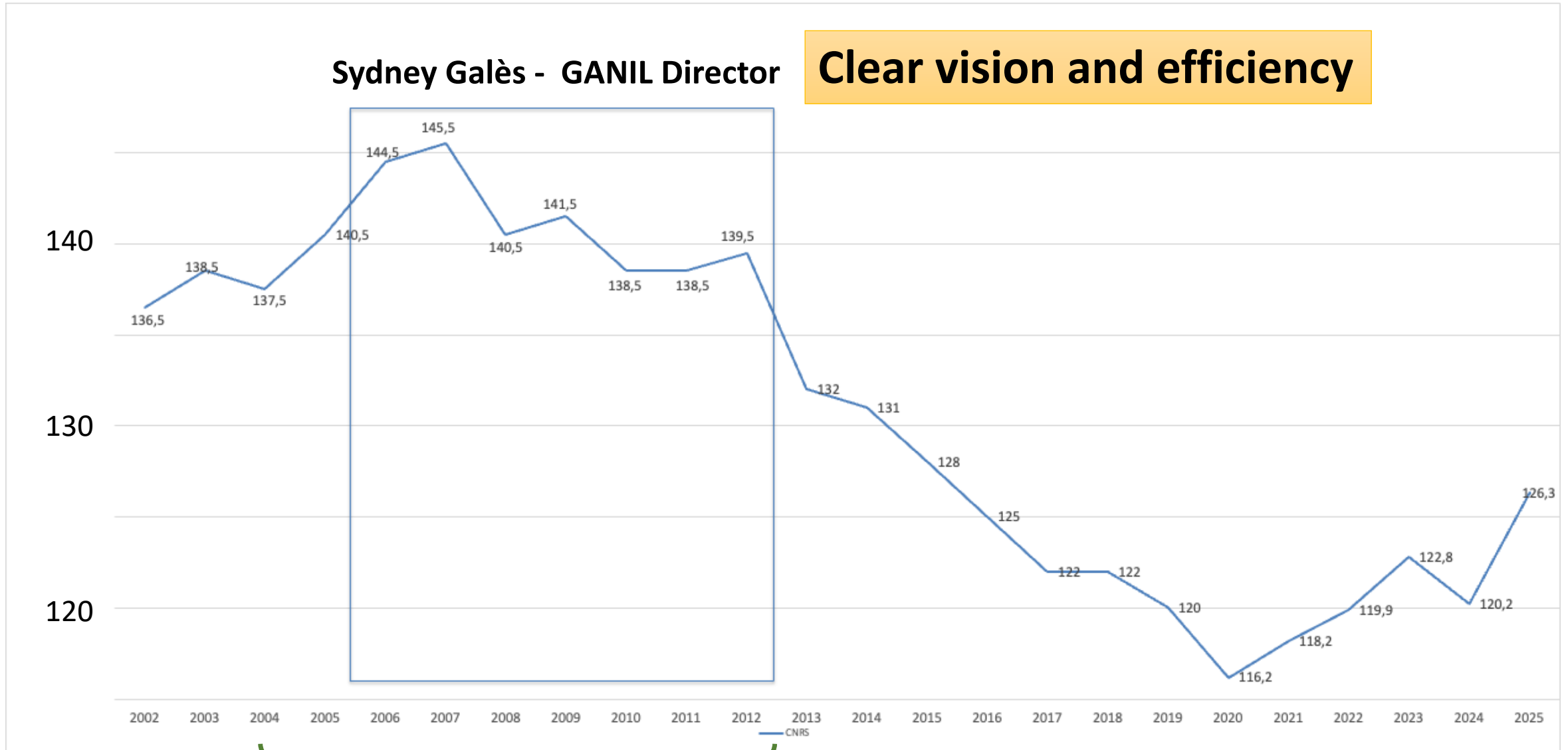


GANIL CNRS permanent staff 2002-2025

GANIL CNRS permanent staff in numbers

Sydney Galès - GANIL Director

Clear vision and efficiency



Sydney Galès - Deputy Scientific Director for Nuclear Physics at IN2P3

GANIL



Sydney with personalities, friends and collaborators @ GANIL



**Visit at GANIL of Prof. Dr Dong-Pil Min,
Republic of Korea**



Visit at GANIL of Catherine Cesarsky

PUBLIC RELATIONS



**Sydney Galès at FR3 TV talking
about SPIRAL2 Week 2011**

Sydney with personalities, friends and collaborators @ GANIL



**Colloque GANIL
Giens, 2006**

Sydney with personalities, friends and collaborators @ GANIL



**Colloque GANIL
Belgodère (Corse), 2011**

Sydney with personalities, friends and collaborators @ GANIL



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Personally, what struck me most was his dedication.

I remember a sunny Sunday afternoon in my garden, after a lengthy intervention on a machine shutdown, receiving a call from Sydney in Tokyo to ensure the accelerator wouldn't be immobilized for too long and that every effort was being made to restart it as quickly as possible and deliver the beam to the physics lab. I had just taken on my role as operations manager, and I quickly realized that even thousands of kilometres away, his priorities were clearly defined, and consequently, so were ours.

His attentiveness and his ability to make decisions also impressed me.

Frederic Chautard

Sydney was a great physicist and an exceptional leader. His work was very positive and transformative for the entire community, both nationally and internationally. We owe him a great deal. He had exceptional human qualities, and I believe many of us had the pleasure of working with Sydney.

Philippe Chomaz

Sydney Galès & GANIL-SPIRAL2

Vision and achievements



We will always remember

Your vision

Your enthusiasm

Your energy

Your friendship

You

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