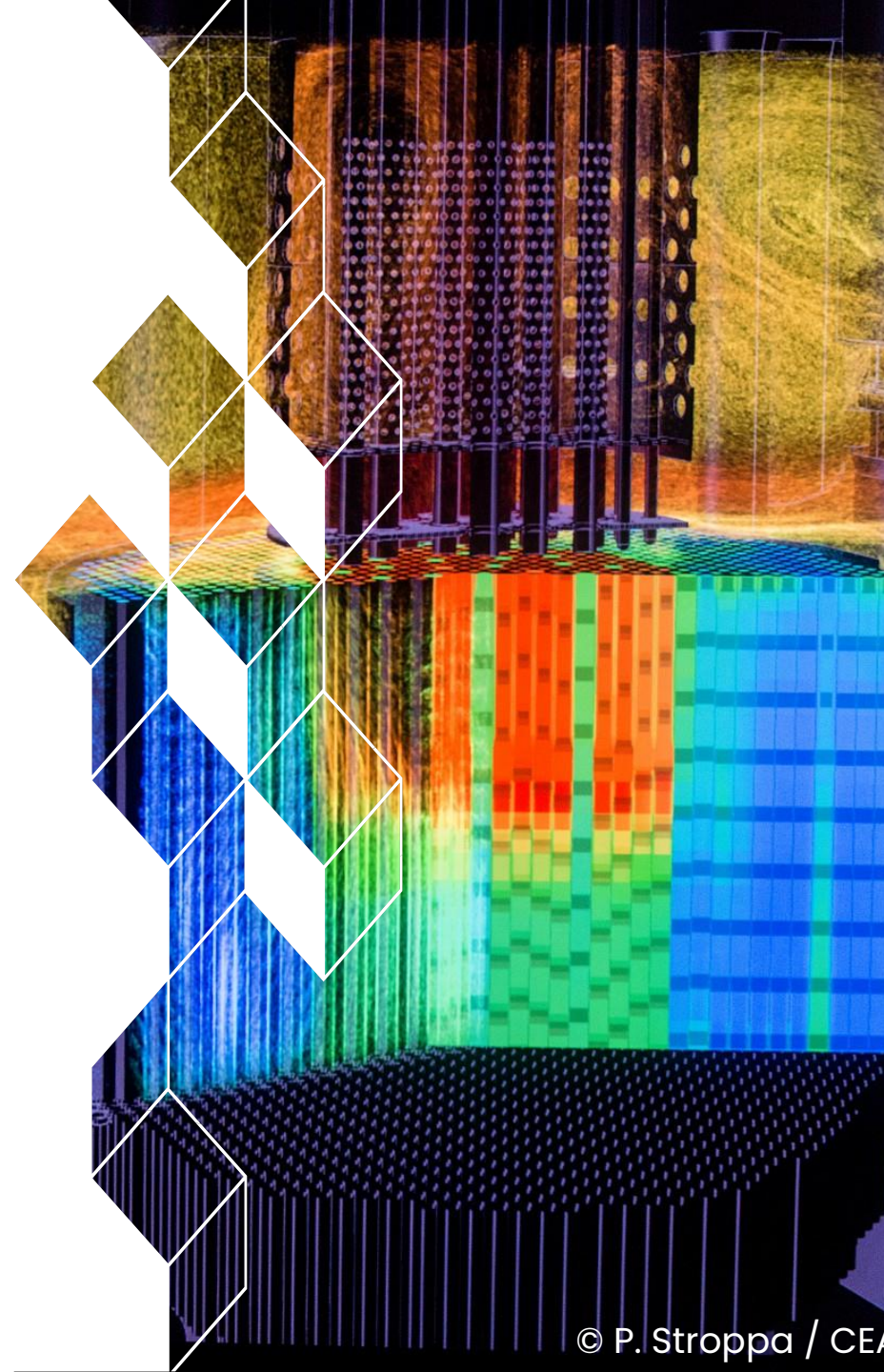




An overview of CEA

Philippe CHAPELOT

IFA 70 years anniversary event – May 18th, 2026



Mission and assets



In support to French public authorities and industrial partners, CEA conducts research and delivers innovative technologies focused on four societal challenges



**NUCLEAR
DETERRENCE AND
SECURITY OF FRANCE**



**LOW CARBON ENERGY
TRANSITION**



DIGITAL TRANSITION



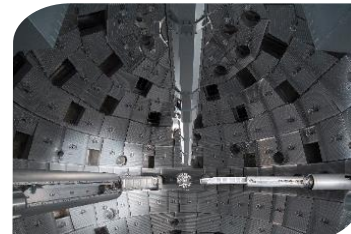
**NEW TECHNOLOGIES
FOR HEALTH**



BASIC RESEARCH

■ CEA – a research and technology organisation taking benefit of its

- ▶ Capability to rely on and combine various scientific and technical skills
- ▶ Experience of large projects of R&D infrastructures
- ▶ Capability to combine digital modeling and experiments



French nuclear industry

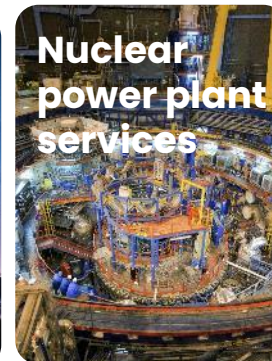
The third largest industrial sector in France

250 000
employees

2 200
companies
thereof 38% having
activities outside France

67% electricity
generation from
nuclear power
plants

35.5 B€
value added in
France



Key figures

2nd major FRENCH R&D ORGANIZATION



22,100
EMPLOYEES



1,700
PHD or POST
DOCS



640
PRIORITY PATENT
FILLING PER YEAR



> 260
CREATED START-
UPS since 1972



> 700
INDUSTRIAL
PARTNERS



> 4,700
PUBLICATIONS
PER YEAR



**NOBEL PRIZE IN
PHYSICS 2023
and 2025**

1st PATENT FILLING research organization in FRANCE and in EUROPE 1st research organization in TOP 100 GLOBAL INNOVATORS (CLARIVATE)



- Headquarter (Paris)
- Civil research centers
- Military activities centers

¹ Fontenay-aux-Roses's establishment
² Saclay's establishment

A concentration of **research locations**

■ 9 CENTERS

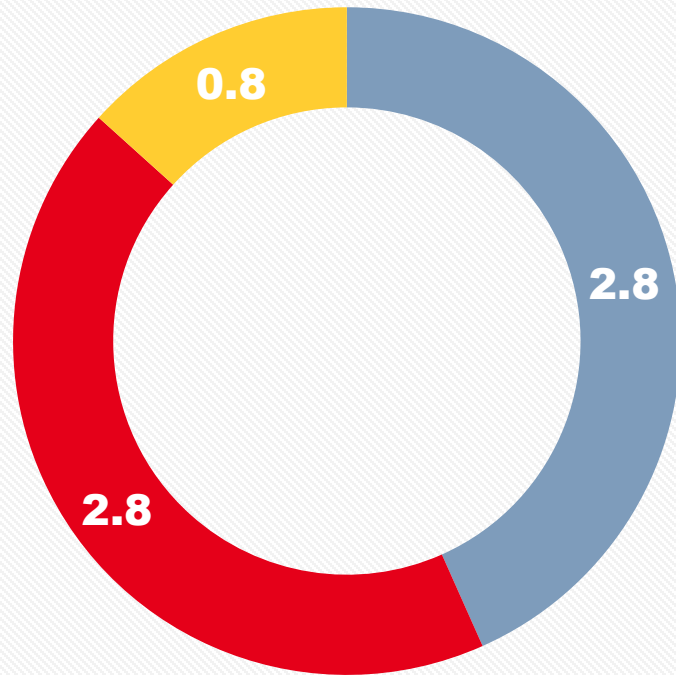
■ FOUNDING MEMBER OF TWO UNIVERSITIES

- Paris-Saclay University (n°1 in continental Europe according to Shanghai ranking)
- Grenoble-Alpes University

Breakdown of resources



TOTAL REVENUES : 6.4 B€



■ Civil activities ■ Defence activities ■ Clean-up and dismantling

Expenditures for civil activities



Nuclear and renewable energies
770 M€



Digital transition
620 M€



Technologies for health
160 M€



Fundamental research
370 M€



Other expenditures (security, teaching, ...)
830 M€

CEA in Europe and internationally

IN EUROPE

- Strong bilateral cooperations with Imec, FZJülich, VTT, IFA ...
- Contributing to 29 structures associated with 24 European partnerships
- Member of the European association of RTOs
- Euratom, 1st recipient
- Horizon Europe, 3rd recipient
- > 100 M€ European funding annually



INTERNATIONALLY



- Representing France at IAEA and NEA
- Counterpart of foreign administrations (DOE, CAEA, ...)
- A network of representatives in 12 countries
- Partnerships with major actors
 - Industry (EU, USA, UK, ...)
 - Academics

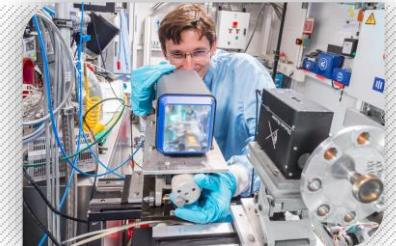
INVOLVED IN MAJOR INTERNATIONAL INFRASTRUCTURES AND PROJECTS



- Member of ESRF, ILL, ESS...
- Member of EuroHPC
- European Chips Act pilot line (FAMES)
- Nuclear fusion (ITER)



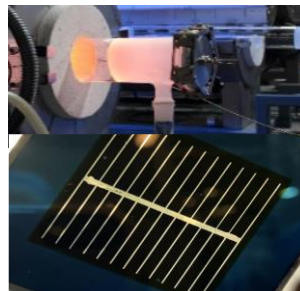
> 65%
publications of CEA involve international co-authors



Noteworthy research achievements



- Support to the French **NUCLEAR POWER PLANT** fleet
- **SPENT FUEL REPROCESSING** and radioactive waste **VITRIFICATION**



- **1st HIGH TEMPERATURE ELECTROLYSIS** system put into service in the world
- **WORLD RECORD IN PV** with Tandem/Topcon cell 30% (December 2024)



- **FD-SOI** technology, creation of **SOITEC** (spin-off of CEA) and **support** to key actors of microelectronics

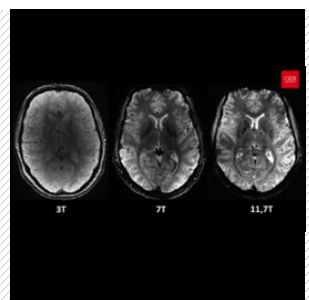
- **FLAT SCREEN TECHNOLOGY**, airbag deployment system, electronic chips, smartphones sensors
- **ULTRASONIC INSPECTIONS** of automobile, aerospace and nuclear parts



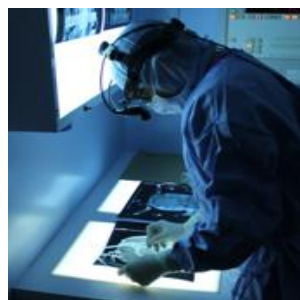
- **FRENCH NUCLEAR DETERRENCE** (nuclear warheads, nuclear naval propulsion)



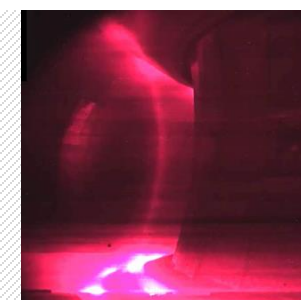
- JAMES WEBB Space Telescope : **CAMERA MIRI**
- Mid-Infrared camera EUCLID



- **1st X-RAY SCANNER** in France
- 1st rapid **EBOLA SCREENING TEST**
- **ISEULT, 1st 11,7 T MRI**, highest brain image resolution



- **SUPERCRITICAL FLUIDS (GREEN CHEMISTRY)** to replace solvents for pollution clean-up in dry cleaning, food, perfume industries...



- **NUCLEAR FUSION: WEST BEATS THE WORLD RECORD FOR PLASMA DURATION** being able to maintain a plasma for more than 22 minutes

French program for innovative nuclear reactors

A public funding over 10 years to foster the French offer for small modular reactors



APPEL À PROJETS

RÉACTEURS NUCLÉAIRES
INNOVANTS



New reactors innovation programme (AMR with Gen-4 designs or fusion)

- Projects granted through a competitive process (including 3 phases from concept maturation to prototyping)
- 1st phase closed in June 2023, 2nd phase ongoing
- Promoting the emergence of new players (start-ups) in the French nuclear energy sector
- Leveraging public funding with private funding
- Aiming at partnerships by connecting start-ups and established market players

Nuclear innovation – French SMR and AMR

11 projects granted (SMR, AMR), 9 requested a R&D support from CEA



PWR type reactor
30 MWth
District heating



Sodium cooled fast reactor
400 MWth / 150 MWe
Industrial heat / electricity



Sodium cooled fast reactor
110 MWe
Industrial heat / electricity



THORIZON

Molten salts reactor
250 MWth / 100 MWe
Industrial heat / electricity



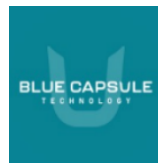
Molten salts reactor
250 MWth / 110 MWe
Industrial heat / electricity



Molten salts reactor
80 MWth / 40 MWe
Industrial heat / electricity



Lead cooled fast reactor
30 or 200 MWe
Electricity, heat, radio-isotopes



HTR type Reactor
150 MWth
Industrial heat / electricity



HTR type reactor
15 MWth
Industrial heat



Fusion type reactor
1GWe
Electricity



Fusion type reactor
1GWth
Electricity



Supporting the development of nuclear skills, a long term commitment

*National Institute of Nuclear Science & Technology
(INSTN)*

National Institute of Nuclear Science & Technology



INSTN was created, within CEA, by the French Government in 1956 to design and implement highly specialized programs in nuclear science and technology, in order to complement the training of engineers and technicians



Under the supervision of 3 ministries



Higher education
& Research

+



Industry

+



Energy



Involved in 33 education programmes
Owner of 5 diplomas and certifications



A large set of simulators, learning platforms, laboratories +
access to CEA facilities and industry plants



International cooperation agreements with countries in
Europe, Africa, the Middle East and Asia
One of the main objectives of INSTN's international activities
is to provide support to CEA's international strategy

Key figures

117

staff members

A network of **1,450**
specialists & experts

1,400

students / year

7,900

trainees for CPD courses / year

12

industrial partners

15

academic partners

International recognition

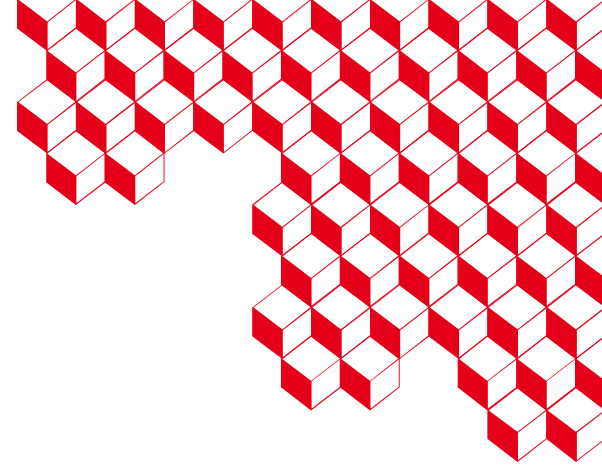
In March 2016, INSTN became an **IAEA Collaborating Centre for Education & Training in Nuclear Technologies, Industrial and Radiopharmaceutical Applications**

In 2021, the INSTN collaborating centre scope covers Education & Training in Nuclear Sciences and Applications, Nuclear Energy, and Nuclear Safety and Security

The 2025–2029 Collaborating Centre agreement was signed during the last IAEA General Conference in September 2025

INSTN was a founding member of the **European Nuclear Education Network** and is member of the board





**Mulțumesc pentru
atenție !**