

# Other poles at IJCLab

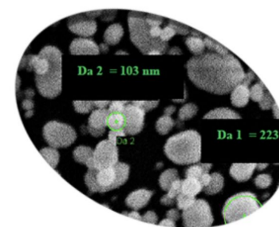
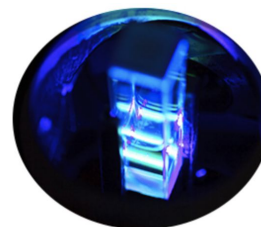


Copyright – IJCLab/CNRS



Copyright – CNRS/IJCLab – Université Paris-Saclay – Université Paris-Diderot

Student's bureau



© IJCLab/CNRS

## 7 Scientific Poles

These poles are structured into research teams and are headed by an Associate Scientific Director (DSA):

- **Nuclear Physics:** [David Verney](#)
- **High-Energy Physics:** [Marie-Hélène Schune](#)
- **Astroparticles, astrophysics and cosmology:** [Sophie Henrot-Versillé](#)
- **Energy and environment :** [Frédérico Garrido](#)
- **Health physics:** [Philippe Lanièce](#)
- **Theoretical physics:** [Samuel Wallon](#)
- **Accelerator Physics:** [Sébastien Bousson](#)

You should meet them in  
your general meeting , or  
they are your supervisor  
:)

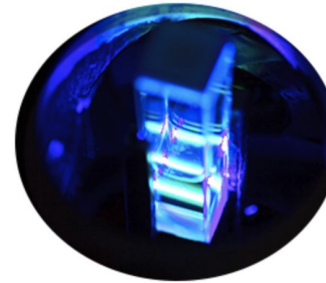
# Energy and Environment

Research related to

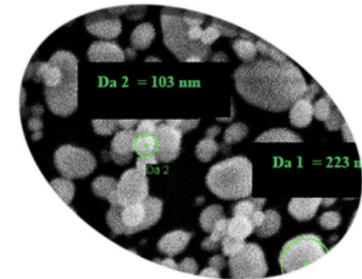
- Nuclear energy
- Environmental issues

Subjects :

- New reactor concepts
- Développement of fuels
- Innovative treatment of nuclear waste
- Radioactive materials and their interaction with the environnement
- ...



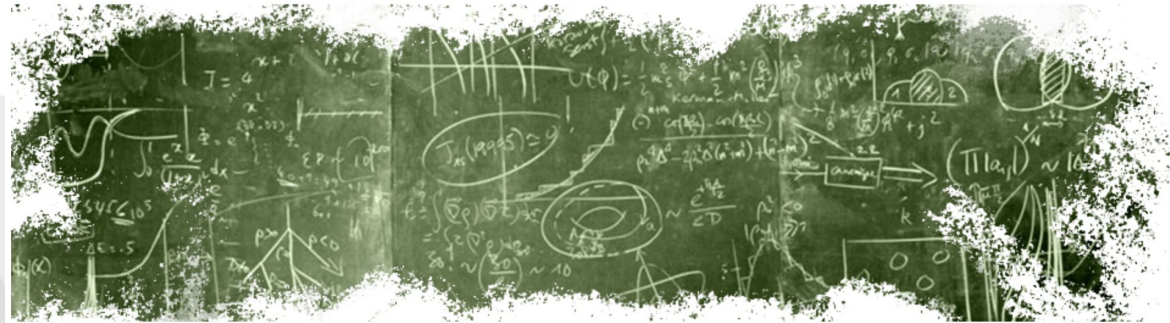
© IJCLab/CNRS



# Theoretical physics

## Topics :

- Cosmology and gravitation
- Higgs-boson physics
- QCD
- Flavour physics
- BSM models and theories
- Nuclear physics
- Statistical physics
- Health physics
- Mathematical physics

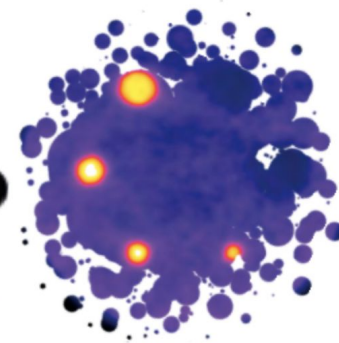
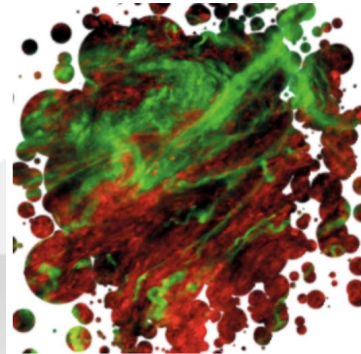


Copyright – IJCLab/CNRS

# Health

## Topics :

- Imaging for applications in cancerology and neurobiology
- New approaches in radiotherapy
- Modelling of biological systems



Copyright – CNRS/IJCLab – Université Paris-Saclay – Université Paris-Diderot



Thank you for your attention



We would be really happy to have next time somebody of you  
presenting your pole 🙄

# Accelerator Physics

Home > Scientific poles > Accelerator physics



©CNRS/IN2P3 – Patrick Dumas

The **Accelerator Physics pole** deals with the research themes and developments in accelerators. Through the expertise of its members, its size and its technical capacities, this pole benefits from an international recognition, contributing essentially to the research activities and developments in the field, as well as the construction of large-scale devices within the national strategy for accelerators.

# Antiparticles astrophysics, cosmology

## Astroparticles, astrophysics, cosmology

Home > Scientific poles > Astroparticles, astrophysics, cosmology



Copyright – EGO-VIRGO/IN2P3/CNRS PHOTO THEQUE

The research themes of the Astroparticles, Astrophysics and Cosmology (A2C) pole aim to deepen our understanding of the Universe. They cover various subjects: the origin of the solar system to the creation of chemical elements, the most violent phenomena within our galaxy and in the extragalactic Universe (associated with black holes and star explosions), the nature of dark energy, dark matter, and neutrinos, the study of the primordial Universe, its formation and evolution, the nature of gravitation. This research is carried out within international collaborations, based on observations with large instruments and large infrastructures (astronomical observatories on the ground, large underground laboratories, polar bases, experiments on stratospheric balloons and space missions).



# Nuclear Physics

Home > Scientific poles > Nuclear physics



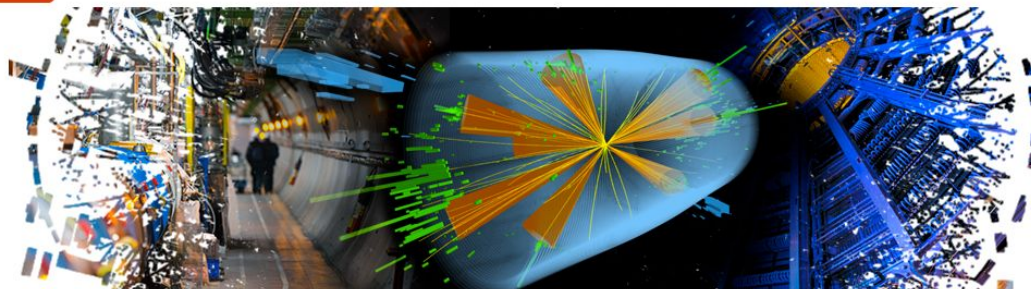
Copyright – CNRS/IJCLab – 2020

The **Nuclear Physics pole** is a community of “builders” working on several research themes: heavy ions (central collisions, multi-fragmentation, strongly dissipative processes, molecular beams, ion/matter interactions), superheavy nuclei (synthesis and structure, spectroscopy after recoil and/or thermalising, fundamental properties), exotic shapes and magic-ness (evolution of magic-ness, coexistence of shapes, triaxiality and superdeformation), exotic correlations (pn pairing, clustering, halos, drip lines) and nuclear astrophysics on accelerator. The experimental activities of this pole take place locally (in particular ALTO), nationally (GANIL) and internationally (ISOLDE, RIKEN, Jyväskylä, Argonne, Legnaro, Dubna, ...).

# High Energy Physics

Home > Scientific poles > High energy physics

 Pole website



Copyright – CNRS, CERN.

The scientific perimeter of **the High-Energy Physics pole** consists in the study of the elementary constituents of matter, the quarks (building blocks of protons and neutrons, among other) and leptons (for instance the electron and the neutrino). We know twelve elementary particles currently, organised in 3 families made each of two quarks, one charged lepton and one neutrino. Given their small masses, they are not sensitive to gravitation, so that one can consider that they are affected only by three interactions:

- the electromagnetic interaction, linked to the electric charge
- the strong interaction responsible for the cohesion of nuclei and nucleons
- the weak interaction causing some radioactive decays and reactions taking place at the heart of stars.