

# Grand Accélérateur National d'Ions Lourds

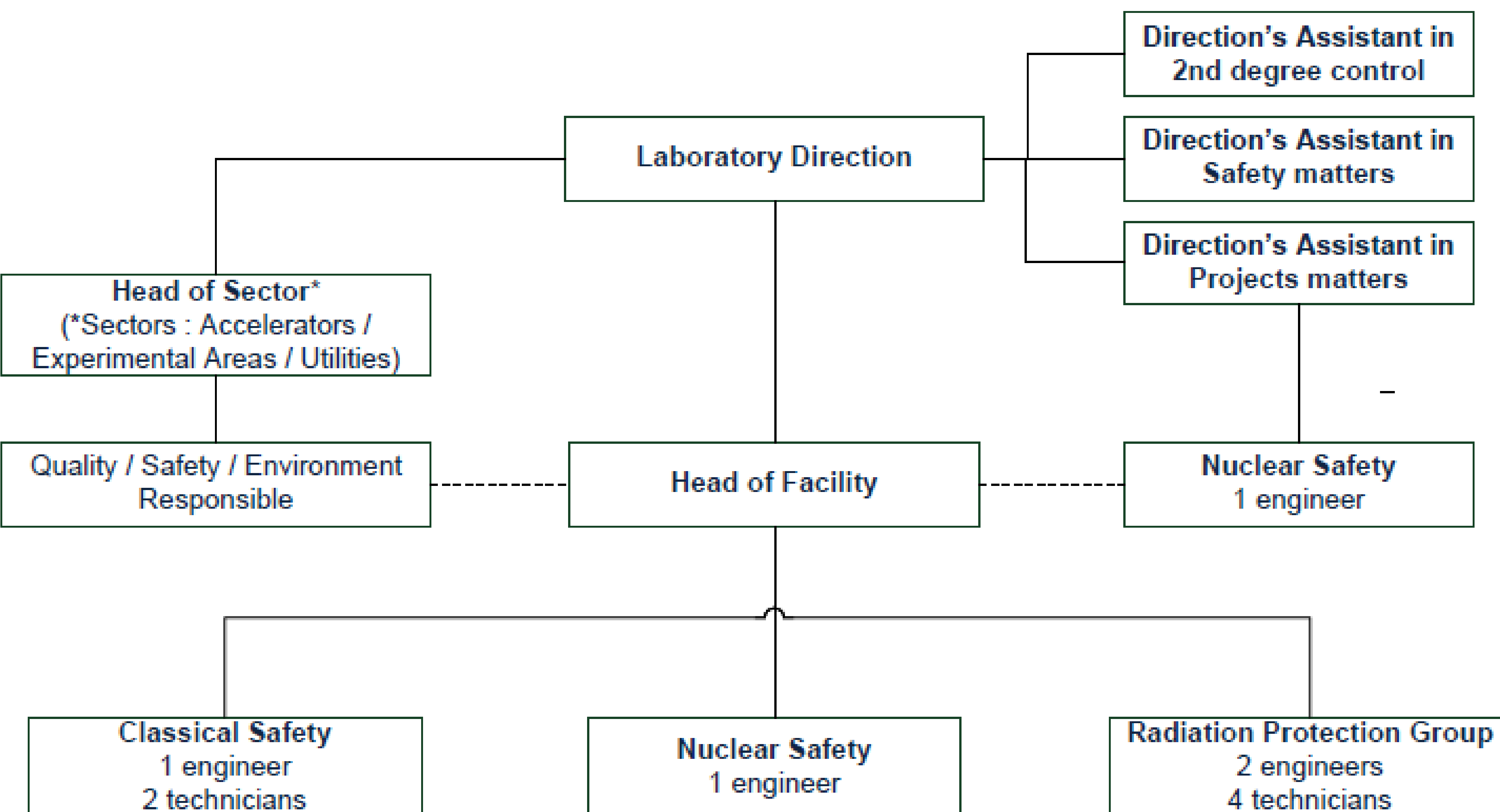


## General information

GANIL was founded in the suburbs of Caen, 200km west of Paris. It depends on both the french research agencies: National Scientific Research Center (CNRS) and Atomic Energy Commission (CEA). This interdisciplinary facility is used for experiences related to Nuclear Physics, Atomic Physics, Chemistry under irradiation and RadioBiology. About 250 Physicists, engineers and technicians operate the three cyclotrons of the facility to deliver either stable ions beams to 95 Mev per nucleon or radioactive beams up to 25 MeV per nucleon. A dedicated Experimental Hall, including 10 different experience labs, allow physicists to conduct experiments. According to the French National Regulations, the GANIL facility is classified as ' Nuclear Basis Facility' (INB). this is the same classification as Atomic Power Plants or Retreatment units.

## History

- 1975 - Creation of GANIL
- 1980 - First Decree : reglementary authorization
- 1983 - First experiment
- 1994 - New devise SISSI : production of exotic beams 2001 - Second Decree : reglementary autorisation for a new device : SPIRAL1 - First SPIRAL1 radioactive beam
- 2001 – Second Decree: reglementary autorisation for a new device: SPIRAL1 – First SPIRAL1 radioactive beam
- 2003 - New RadioBiology laboratory (LARIA)
- 2005 - Launching of SPIRAL2 project
- 2012 - Third decree : reglementary autorisation to grow up the facility limits (to include SPIRAL2 – 1st phase buildings)
- 2014 - First expected SPIRAL2 beams
- 2012 - Operating expense : 8 500 000 € (without salaries)



## Safety hazards

As a so called ' Nuclear Basis Facility', the authorization of functioning is delivered to GANIL by the French Safety Nuclear Authority (ASN). In this aim, a specific safety referential is required and has to be up to date. It is composed of: a Safety Report (1<sup>st</sup> part: description of the equipment and identification of the hazards / 2<sup>nd</sup> part: analysis of the hazards), an exploitation Rules booklet, an internal Emergency Plan to manage accidents (such as fires) and a decomissioning plan. The formalism of the Safety Report involves the analysis of hazards of all origins: internal nuclear hazards (such as external exposure to radiations), internal non nuclear hazards (such as fires), external hazards (such as earthquakes). To prevent nuclear hazards, GANIL has to identify all equipment 'Important for Safety' in order to manage correctly all interventions on those equipments.

## Projects

A new deuterons accelerator facility: SPIRAL2 is presently being built on the site of the GANIL. It will allow the production of neutrons-rich radioactive beams. In its 2<sup>nd</sup> phase, it involves the irradiation of a 5kg Uranium Carbide target. Safety requirements deal with the containment of the produced radioactivity in dedicated equipment.