

**National Laboratory of Frascati**  
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## 1 Introduction

The National Laboratory of Frascati (LNF) is the largest (for number of employees) and the oldest of the INFN laboratories. Its main characteristic can be identified in the capability of building and operating particle accelerators. The LNF site extends over a surface of 131.178 m<sup>2</sup>, 56.000 of which are indoor and include offices, laboratories and workshops. In the LNF premises the following facilities are operational:

- DAΦNE, an  $e^+e^-$  collider operated at the  $\Phi$  energy (1020 MeV), able to deliver instantaneous luminosities  $\sim 2 \times 10^{32} cm^{-2}s^{-1}$ , a real record at this energy;
- a synchrotron radiation facility (DAΦNE.Light) with lines in the X, UV and infrared regions, extracted in parasitic or dedicated mode, from the intense photon emission of DAΦNE;
- a Beam Test Facility (BTF), providing electron/positron or photon beams mainly for detector calibration purposes;

- SPARC\_LAB, a facility that combine a linear accelerator (SPARC) and a  $\sim 200$  TW laser (FLAME). This is an infrastructure for R&D in the field of new technologies for particle acceleration like FEL, PWA and TeraHertz radiation;
- SCF\_LAB, a laboratory equipped for Outer Space Simulation;
- NAUTILUS, a cryogenic gravitational wave antenna in operation since 1992;
- assembling halls, mechanical workshops, a Computer Center, and an Electronics Laboratory suited for complex and challenging enterprises in many fields of fundamental research;
- seven clean rooms (class ISO 6 $\div$ 8), three connected to DAFNE\_Light, SPARC\_LAB and SCF\_LAB, and the others equipped for the construction of different kind of particle detectors, for a total area of  $\sim 400\text{m}^2$ .

## 2 Organization

The LNF personnel, at the end of 2015, consists of 325 units, 56 of which have a fixed term contract, plus 303 associate members. Among these, there are university and PhD students, young post-Docs and employees from universities or other research institutions. Associate members work alongside staff members and likewise take part in the laboratory’s activities. Tab. 1 shows the division of LNF personnel among the different profiles.

	Staff	Temp.	Tot.
Researcher	74	9	83
Engineer	40	20	60
Administrative	31	10	41
Technician	124	17	141
Tot.	269	56	325

Table 1: Snapshot of LNF personnel at Dec. 2015.

Fig. 1 shows the organization of the laboratory. The structure consists of services (green boxes in the picture), that respond directly to the Director, and three divisions (Research division, Accelerator division and Technical division) that also consist of different services. The orange box, labeled “Scientific Committee”, represents a consulting body of the Director consisting of eminent international scientists. They meet twice a year and deliver recommendations regarding the scientific programs of the laboratory.

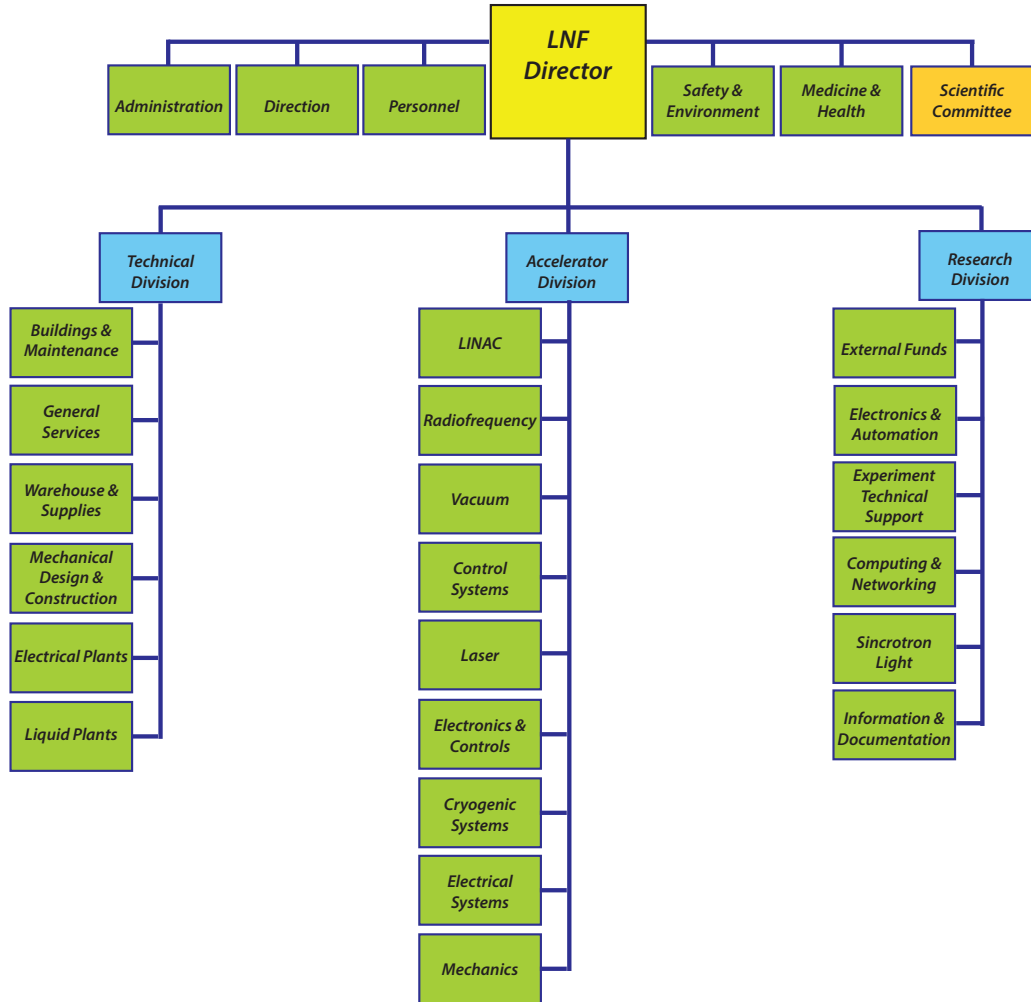


Figure 1: The LNF organization (see text for more details).

### 3 Activities

The LNF can rely on big spaces and peculiar infrastructures and thanks to that, it often hosts ambitious and challenging projects.

The local research activities of LNF are centered on DAΦNE, and on the other on-site infrastructures, but LNF researchers are also involved in many other scientific programs carried out at the major international laboratories all over the world.

The LNF has also an intense outreach activity. This involves Open Days, laboratory guided

tours for students, general public events and seminars, training courses for high school students and teachers from all over Italy.

A detailed description of all the LNF 2015 activities is provided in the following sections.