

## Centro di Risonanze Magnetiche - CERM

Via Luigi Sacconi 6 – Sesto Fiorentino

### Safety booklet

Criteria and rules of conduct for safety and risk prevention in CERM workplaces such as NMR laboratories

#### Access to the facility and rules of conduct

People who are not institutionally part of CERM such as students, visitors, users, etc. (hereinafter personnel not institutionally belonging to CERM) can access the CERM facilities only if authorized and under the direct responsibility of CERM staff: teachers, scientific or laboratory managers. In any case, they must be covered by accident insurance.

The teacher or the manager supervises the observance of the safety rules by the personnel not institutionally belonging to the CERM, that he himself sets out. The teacher or manager will explain the rules and is also required to make sure that what has been said on safety has been received and understood by the mentioned above staff.

People who are not part of the CERM institutionally and who are inside the structure are required to strictly observe the requirements of the teacher and manager who at that time is responsible for them.

#### Safety measures

Safety exits, Fire extinguishers, First aid boxes, Alarm signals

Forced aspiration with oxygen sensor and / or manual start in the NMR laboratories

#### Magnetic resonance

In rooms where NMR devices are present, there are more or less intense magnetic fields. Based on the specific legislation (Legislative Decree 81/2008, ICNIRP Guidelines, Legislative Decree 159/2016) the following areas are identified:

Areas where the access of the population and of workers particularly at risk is normally forbidden: the areas where the dispersed magnetic induction field exceeds the Action Values (VA), i.e. it is equal to or greater than 0.5 mT (5 Gauss);

Areas where the Exposure Limit Values (VLE) for workers are respected, i.e. in normal working conditions the areas affected by dispersed field values of external magnetic induction up to 2T (20,000 Gauss), and up to 8T (80000 Gauss) for localized exposure of the limbs or under controlled working conditions.

All areas where the electromagnetic field levels exceed the VA of 0.5mT (5 Gauss) are appropriately marked and delimited. In these areas it is forbidden to introduce objects that could be damaged by the magnetic field (magnetic cards, watches...) and ferromagnetic objects that could accidentally get charged and/or be attracted by the magnet; only personnel duly authorized by the Director of CERM can access these areas.

In particular, the controlled access area is forbidden to workers particularly at risk such as, for example:

- People with implanted electrical devices, for example: pacemakers, defibrillators, metal prostheses
- People with severe alterations of organs and systems considered to be targets of non-ionizing radiation (nervous system, gonads)
- Pregnant women
- Minors
- People with sickle cell anemia

In the event of a magnet quench, the forced suction system, which the laboratory hosting the instrument is equipped with, will start automatically and in any case it is good practice to leave the laboratory as quickly as possible.

In any case, do not touch the NMR instrumentation.

#### Behavior in case of emergency

There is an emergency plan prepared by the University for CERM.

This plan, as well as all the documents relating to safety at CERM, is available to everyone online on the CERM website (<https://www.cerm.unifi.it/documents-and-templates>) and at the reception.

In any situation of danger or emergency, urgent communication must be made to the Reception: internal telephone 4252 from 8.00 to 17.00.

Outside these hours, the communication must be made to surveillance 3818

Procedures established for the intervention of public officials: in case of fire, health emergency and Emergency Response (Police or Carabinieri), intervene immediately by calling the security on **3818**

Unique number for emergencies      112      (from internal phones 0112)

#### In the event of a general evacuation alarm

- Leave the building immediately and close the doors (without locking the key), proceeding along the shortest evacuation routes which are indicated by green signs;
- Reach the collection point outside the building;
- Wait for the instructions of the EMERGENCY PERSONNEL, until the all-clear signal to be able to re-enter the building.

I, the undersigned .....;  
born in .....;  
country....., on .....;  
declare to have read and understood this Safety Booklet.

Signature

\_\_\_\_\_

In the presence of the teacher/manager \_\_\_\_\_

Sesto Fiorentino, \_\_\_\_\_