

# Physics and Accelerators Unit

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In 2011 the research activities were guaranteed by the research groups installed in the Unit and focused on the current projects using the new possibilities offered by the upgraded laboratories and new infrastructures installed under the re-equipment programme.

The post graduated formation was maintained as an important commitment of the Unit and new graduated students were engaged in the research activities during 2011.

The R&D activity in the Unit was carried out under the responsibility of the following laboratories and groups:

The **Ion Beam Laboratory (IBL)**, equipped with a 2.5 MV Van de Graaff accelerator and an ion microprobe end-station, a 3 MV tandem accelerator with a micro-AMS system, and a 210 kV high fluence ion implanter. The laboratory is an open-access facility and the experimental studies cover the fields of Materials Science, Environment, Health, Biomedicine, Atomic and Nuclear Physics (cross-sections measurements). The research topics will appear in the next pages under the headings **Advanced Materials Research Group, Materials Characterization with Nuclear Techniques,**

**Elemental Characterization and Speciation Group, Group of Biomedical Studies and Nuclear Reactions Group.**

The **Condensed Matter Group** investigates hybrid materials and polymers, prepared and/or modified by gamma irradiation, using conventional and neutron scattering techniques. The group maintains and operates the Laboratory of Macromolecular Materials, LM3, that is being upgraded with new facilities for sample preparation and characterization.

The **Radiation Technologies: Processes and Products Group** deepens the applications of ionising radiation using the radiation equipment – Precisa 22, experimental Co-60 facility and a LINAC – linear accelerator (IRIs), and the laboratory of clean rooms (LETAL). These new infrastructures, built under Re-equipment Program, are unique in the country and support the R&D Projects in the fields of Health, Environment, Food and Art.

The **Nuclear Instruments and Methods Group** investigates modelling on neutron and gas discharge physics and development and production of nuclear instrumentation.

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## Staff

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