

# Reactor

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The Portuguese Research Reactor (RPI), as a unique infrastructure in the Iberian Peninsula, houses as well the ***Atmospheric Elemental Dispersion*** and ***Applied Dynamics*** groups. The RPI also supports activities in the Chemistry Sector, the Physics Sector and in the Department for Radiological Protection and Nuclear Safety. The use of the RPI by foreign groups from Universities and Research Laboratories has continued to increase and accounted for 23% of the total irradiation time in 2004.

The staff involved in all aspects of the operation and use of the RPI presents its activities under the common headline of ***Operation and Exploitation of the Reactor, Dosimetry (RPI) and Reactor Calculations***. A significant number of research projects is going on, or were just approved in this year, covering areas of dosimetry, materials science, neutron tomography and radiation effects in materials and components.

The ***Atmospheric Elemental Dispersion*** group uses the  $k_0$  INAA technique in the RPI and was again the main user of the reactor in 2004, accounting for 21% of the total irradiation time. The group is dedicated to cycling and impact of trace elements in the atmosphere. It addresses, specifically, the development and application of nuclear techniques,

source apportionment and tracking in the atmosphere, chemical speciation, uptake and release of chemical elements in biomonitoring and monitoring, as well as health linkage through epidemiology and nutrition studies. These objectives are approached through research, included mostly in BSc, MSc and PhD theses. The activities are financed by the industry (ValorSul urban waster incinerator) and by the Foundation for Science and Technology.

The research performed by the ***Applied Dynamics*** group is mostly concerned by vibration and acoustic problems displayed by components of nuclear and conventional power plants. As such, a significant part of their research results has been motivated and funded by the French *Commissariat à l'Energie Atomique (CEA)* and the Portuguese *Electricidade de Portugal (EDP)*. However, the techniques developed by this group can and have been used to solve problems, both of industrial and fundamental nature, outside the realm of power generation. In spite of being one of the smallest groups in terms of ITN staff, this fact is compensated by an active collaboration with Universities and Research Laboratories, both in Portugal and abroad. The vitality of this group is well demonstrated by their research contracts and publications.

# Structure of the Sector and Technical staff

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## Research groups in the Reactor sector

- Operation and exploitation of the Reactor, Dosimetry (RPI) and Reactor Calculations
- Applied Dynamics
- Atmospheric Elemental Dispersion

## Administrative and Technical staff

- T. FERNANDES
- A. SILVA