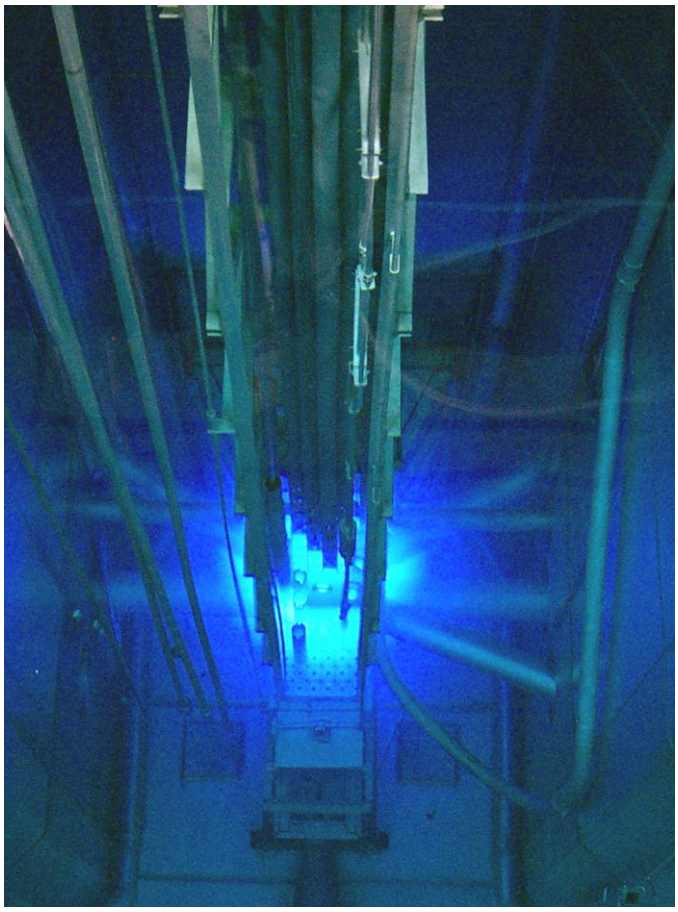
Reactors and Nuclear Safety Unit



Reactors and Nuclear Safety Unit

José Gonçalves Marques

The Research Unit on Reactors and Nuclear Safety includes the ***Portuguese Research Reactor*** (RPI), a unique infrastructure in the Iberian Peninsula, as well the ***Neutron Activation in Environment, Nutrition and Epidemiology*** and ***Applied Dynamics*** groups. The RPI also supports activities for groups in the other Research Units of ITN, as well as in some Universities. Two new researchers were hired under the *Ciência* initiative during 2009, resulting in a total of 6 researchers hired in 2008 and 2009 in this research unit. This will have a significant impact in the near future, as the number of full-time researchers nearly doubled.

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.*** A strong effort was made in 2010 for the preparation of the replacement of the instrumentation and control of the RPI and the modernization of its radiological monitoring system.

The ***Neutron Activation in Environment, Nutrition and Epidemiology*** group uses the k_0 INAA technique in the RPI and was again the main Portuguese user of the reactor in 2010, accounting for nearly 30% 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 PhD theses. The activities are essentially financed by the Foundation for Science and Technology (FCT).

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 continuing to be 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.

Staff

Researchers

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