

## **Nuclear Physics and the development of new systems for energy production and waste transmutation**

S. Leray

*CEA/Saclay, Irfu/SPhN, F-91191, Gif-sur-Yvette Cedex, Italy*

Contact email: [sylvie.leray@cea.fr](mailto:sylvie.leray@cea.fr)

During the last decade, nuclear physicists have demonstrated a growing interest for applications, in particular in the domain of nuclear energy. This interest was driven initially by the possibility to transmute nuclear waste in accelerator-driven sub-critical reactors and then by the studies for the development of a new generation of nuclear reactors. Nowadays, safety considerations are becoming an important driving force and related requests for nuclear data are arising.

In this talk, the new needs will be discussed. A review of recent achievements in nuclear physics for nuclear energy will be presented. The emphasis will be put on applications in which the role of fundamental nuclear physics is important: either by the development of original experimental techniques or by the search for a deeper understanding of reaction mechanisms. Opportunities offered by the availability of new facilities will also be discussed.