



u2

COMPARATIVE STUDY OF ACCELERATOR DRIVEN SYSTEM (ADS) OF DIFFERENT TRANSMUTATION SCENARIOS FOR ACTINIDES IN ADVANCED NUCLEAR FUEL CYCLES

M. Embid-Segura, M.E. Gonzalez Romero and A. Perez Parra

CIEMAT; Avda. Complutense, 22 Edif. 17; 28040 Madrid (SPAIN)
Email: Miguel.Embid@ciemat.es; <http://fachp1.ciemat.es>

Key words: Transmutation, Actinides, ADS, Nuclear wastes.

In recent years transmutation has raised as a complementary option to solve the problem of the long-lived radioactive waste produced in nuclear power plants. The main advantages expected from transmutation are the reduction in volume of the high level waste and a significant decrease in the long-term radiotoxicity inventory, with a probable impact in the final costs and potential risks of the geological repository.

This paper will describe the evaluation of different systems proposed for actinide transmutation, their integration in the waste management process, their viability, performances and limitations. Particular attention is taking of comparing transmutation scenarios where the actinides are transmuted inside fertile (U, Th) or inert matrix.

This study has been supported by ENRESA inside the CIEMAT-ENRESA collaboration for the study of long-lived isotope transmutation.