



The Abdus Salam International Centre for Theoretical Physics

Workshop on

ROLE OF PARTITIONING AND TRANSMUTATION IN THE MITIGATION OF THE POTENTIAL ENVIRONMENTAL IMPACTS OF NUCLEAR FUEL CYCLE

20 - 24 November 2006

ICTP, Miramare – Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste - Italy), in cooperation with the International Atomic Energy Agency (IAEA, Vienna - Austria), is organizing a Workshop on "Role of Partitioning and Transmutation in Mitigating the Potential Environmental Impacts of Nuclear Fuel Cycle" to be held at ICTP in Trieste from 20 to 24 November 2006.

Efficient management of large inventories of spent nuclear fuels consisting of radiotoxic transuranic elements (TRU's) and long lived fission products (LLFP's) is an important factor in the eco-friendly growth of nuclear energy. Different countries are adapting different nuclear fuel cycle options 'once through fuel cycle' or 'closed fuel cycle' according to their national preferences. Incorporation of Partitioning and Transmutation (P&T) schemes into the nuclear fuel cycle to reduce the radio-toxicity of the nuclear waste is sought for public acceptance of nuclear energy. Success of the P&T schemes would depend on effective partitioning and incineration of TRU's and LLFP's. The role of P&T in mitigation of radiological toxicity in several nuclear fuel cycle options has to be assessed. Significant efforts to develop P&T systems are underway in many countries including China, the European Union, India, Japan, the Russian Federation, South Korea, the United Kingdom and the United States of America.

The purpose of the workshop is to highlight the role of P&T scheme in mitigating the environmental impact and also to discuss on the decisive factors for selection of environmentally preferred nuclear fuel cycle options. In addition the scope of the workshop is to familiarize students with the status of the R&D activities related to P&T.

The workshop will focus on the following topics;

- Review of partitioning and recycling of TRUs fuels;
- Overview of Transmutation schemes including Accelerators;
- Important radio-nuclides and factors that determine environmental impact and the Separation criteria;
- Relationship between environmental impact and parameters of P&T system; and
- Comparative evaluation of reduction of potential environmental impact in different fuel cycles with and without partitioning and transmutation scheme.

Attendees: the expected target audience is young researchers and interested experts mainly from developing countries and policy makers, who want to assimilate the role of P&T in minimizing the environmental impact. They should hold an advanced degree in chemistry or material science or metallurgy or nuclear physics or nuclear engineering or related subjects, and preferably possess a few years of professional experience in any branch of nuclear fuel cycle. Although the main purpose of ICTP is to help scientists from developing nations through a programme of training activities within a framework of international cooperation, applicants from developed countries are also welcome to attend. As this activity will be conducted in English, participants must have an adequate working knowledge of this language.

As a rule, travel and subsistence expenses for participants should be borne by their home institutions. However, limited funds will be available to support **some** participants from developing countries. Such financial support will be available only to those who attend the entire activity. Thus, every effort should be made by candidates to secure support for their fare from their home countries. No registration fee is associated with the attendance at the Workshop.

Application forms for the Workshop can be found on the Web server of ICTP at:
http://cdsagenda5.ictp.trieste.it/full_display.php?ida=a05226

Background information on the IAEA Nuclear Fuel Cycle and Materials Section is available from:
http://www.iaea.org/OurWork/ST/NE/NEFW/nfcms_advanced_01.html

The closing date for receipt of applications for participation is 28 August 2006.

Those wishing to participate should fully complete and sign the "Request for Participation" form available from the ICTP WWW server and send by mail or FAX to:

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THE POTENTIAL ENVIRONMENTAL IMPACTS OF NUCLEAR FUEL CYCLE
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in cooperation with

International Atomic Energy Agency

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Workshop structure – Two modules:

Module 1: P&T

- Introduction to fuel cycle
- Review of partitioning methods
- Overview of transmutation concepts
- Different fuel cycle concepts
- Future directions

Module 2: Environmental impact

- Assessment of radio-toxicity in fuel cycle
- Definition of environmental impact
- Important radionuclides and factors
- Comparative evaluation of reduction of potential environmental impact
- Cross-cutting issues

Application deadline

28 August 2006