

# **COE Satellite Technical Meeting**

**On**

## **Non-proliferation and Protected Plutonium Production (P<sup>3</sup>)**

**Date : December 1, 2006**

**Location: Meeting Room, Building #1, Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology, Tokyo, Japan**

### **Background:**

The general concept of Protected Plutonium Production (P<sup>3</sup>) was proposed in the International Seminar on “Advanced Nuclear Energy Systems toward Zero-Release of Nuclear Wastes” held in Japan, in 2000, to enhance the isotopic barrier against uncontrolled proliferation of Plutonium by transmutation of Minor Actinides.

The P<sup>3</sup> concept that attributes to the Plutonium Production with higher proliferation resistance and also to the incineration of Minor Actinides with global environmental protection has drawn attention by experts and relevant research organization in the nuclear community. Considering such attributes, Nuclear Fuel Cycle and Materials Section, Division of Nuclear Fuel Cycle and Wastes Technology of IAEA convened a Consultancy Meeting to evaluate this P<sup>3</sup> concept.

The first Consultancy Meeting of IAEA on P<sup>3</sup> Project was held in June 19-20, 2003, IAEA Headquarter, Vienna, Austria. The Consultancy Meeting was successful and the P<sup>3</sup> concept received a high appraisal by the participants.

In the IAEA consultancy meeting, it was concluded that P<sup>3</sup> activity potentially contributes to the solution of the management of increasing inventories of plutonium and Minor Actinides from the proliferation and environmental points of views. It was also recommended in the meeting that to provide scientific and technical feasibility of the P<sup>3</sup> project, substantial amount of R&D activities are required and could be implemented through national and international mechanisms, which can include also the cooperation through IAEA, Generation-IV, ISTC and GNEP as well as through a new initiative, for example, International Science and Technology Forum on Protected Plutonium Utilization etc. It was also stated in the meeting that IAEA welcomes international cooperation between national nuclear technical universities and the research organizations in the IAEA member states, supporting the nuclear knowledge preservation activity, and the originator of the P<sup>3</sup> activity, Tokyo Institute of Technology also welcomes any other national and international involvement in support and implementation of the P<sup>3</sup> activity.

Based on the recommendation in the IAEA Consultancy Meeting, Research laboratory for Nuclear Reactors, Tokyo Institute of Technology (TITECH) organized the First International Science and Technology Forum on Protected Plutonium Utilization for Peace and Sustainable Prosperity, on March 1-3, 2004, Tokyo, Japan.

The Second Consultancy Meeting of IAEA on P<sup>3</sup> Project was held in June 15-16, 2006, IAEA Headquarter, Vienna, Austria. for open discussion on the Peaceful Utilization of Plutonium in future against uncontrolled proliferation, new reactor market in the world and the long term storage for future energy crisis with Inherently Protected Plutonium.

## **Objectives:**

The objective of the COE Satellite Technical Meeting is to bring together specialists for open discussions on Non-proliferation, Proliferation Resistant (PR), PR Threats & Measures, Evaluation Methodology for PR, Category of Fissile Materials, Attractiveness of Nuclear Materials, Protected Plutonium Production (P<sup>3</sup>) and related Nuclear Data against uncontrolled proliferation.

## **Program**

**10:00-10:05**

**Opening Address by Prof. M. Saito**

**10:05-12:00**

**Presentations & Discussions on the technical Issues on Non-proliferation such as:**

- Proliferation Resistant (PR) Threats & Measures
- Evaluation Methodology for PR
- Category of Fissile Materials
- Attractiveness of Nuclear Materials
- Innovative Nuclear Energy Systems with Enhanced Proliferation Resistance
- Related Nuclear Data

**The materials for discussion will be presented by Prof. M. Saito, Prof. Yu. Korovin, Prof. V. Artisyuk, Prof. E. Kruchokov, and Dr. A. Chebeskov.**

**14:00-17:00**

**Presentations and discussions on technical Issues on Protected Plutonium Production (P<sup>3</sup>) and related Nuclear Physical Properties such as:**

- Fundamentals of P<sup>3</sup>
- Proliferation Issues in Protected Plutonium Utilization(PPU): technically acceptable criteria for Plutonium proliferation resistance
- Advanced P<sup>3</sup> Reactor Concepts
- Mass Balances for Protected Plutonium Production
- Experiments on P<sup>3</sup>
- Roles of ADS and Fusion Neutron Source for P<sup>3</sup>;
- Related Nuclear Data

**The materials for discussion will be presented by Prof. M. Saito, Prof. K. Fukuda, Prof. T. Yoshida, Prof. M. Igasshira, Dr. M. Itoh, Dr. T. Mori, Prof. H. Sagara and Dr. A. Takibaev.**

**17:30-20:00**

**Welcome Reception**