

**Technical Meeting on Design, Manufacturing and Irradiation Behaviour
of Fast Reactors Fuels**

30 May-03 June 2011

Institute of Physics and Power Engineering (IPPE), Obninsk, Russian Federation

Announcement

I. BACKGROUND

Fast reactors are vital towards meeting security and sustainability of nuclear energy in long-term perspective. They offer vastly more efficient use of uranium resources and the ability to burn actinides which are otherwise the long-lived component of high-level nuclear wastes. These reactors require development, qualification and deployment of improved and innovative nuclear fuel and structural materials with better properties combined with high radiation resistance. Nowadays, efforts are made on the design, manufacturing and study of the fuels behaviour under extreme operating conditions of temperature and irradiation.

Fast reactor fuels provide adequate long-term management of Pu and the minor actinides, thereby minimizing proliferation risks and waste repository requirements while still generating ample amounts of heat for energy, hydrogen, or water desalination. Considering the important role of nuclear fuels in fast reactor operation, R&D to advance the methods and tools used in the design and development of nuclear fuels is essential and needs to be constantly addressed. Hence, the design and manufacturing of innovative fuel systems requires exchange of knowledge and experience, generation of missing basic data, identification of relevant mechanisms of materials degradation, and development of appropriate models. Fuel fabrication technologies should be specifically engineered with the desired properties incorporated into the nuclear fast reactor fuels, such as high fissile atom density, high thermal conductivity, good compatibility with the cladding and reactor coolant, good mechanical properties, and low swelling caused by fission products. Moreover, a thorough insight into the physical, chemical, and mechanical behaviour of fuel materials under irradiative environments is important in order to predict the fuel's lifetime.

The IAEA is initiating this Technical Meeting on “Design, Manufacturing and Irradiation Behaviour of Fast Reactors Fuels” in order to provide a forum to share knowledge, practical experiences and information on the improvement and innovation of fuels for fast reactors, through scientific presentations and brainstorming discussions. This meeting aims to bring together scientists and engineers from different fields to discuss critical issues and support the efforts allocated to the design and manufacturing of nuclear fuels for the existing and the next generation of fast reactors, as well as the optimisation of future irradiation experiments.

II. OBJECTIVES

The purpose of this meeting is to enable a rationalization and advancement of the design and manufacturing processes, a better selection of promising fuels, and a reduction of the time and costs currently required for R&D and testing, as well as to contribute to the improvement of the safety features of fuels under all operational states and accidental conditions. An overview of the status and perspective of the design, manufacturing and irradiation behaviour of fast reactors fuels will be provided during this meeting. The main objectives are the following:

Ensure sharing and dissemination of knowledge and expertise;

Discuss specific features and issues of existing fuels;

Improve knowledge and data for the design and engineering of fast reactor fuel and core structural materials;

Discuss perspectives on advanced fuels;

Consider modern technological, design and testing tools enabling reliable performance of fuels in current and planned operational environments;

Establish international consensus in the developmental efforts on advanced fast reactor technologies, including collaborative programs and experiments.

Contribute to the preparation and outline of the planned IAEA Coordinated Research Project on "Examination of advanced fast reactor fuel and core structural materials".

III. TOPICS TO BE COVERED

Papers are invited on all aspects of fuels technology and irradiation performance analysis relative to current and future fuel designs and operational conditions. Both experimental and theoretical/modelling works are welcome.

The following topics have been identified as being of particular interest:

1. Historically accumulated fast fuel irradiation experience;
2. Status, issues and prospects in fuel design and manufacturing technologies;
3. Characterisation, performance analysis and PIE of current and advanced cladding and wrapper steels for fast reactors;
4. Advanced and innovative fuels for fast reactors;
5. Fast neutron Irradiation Experiments: National and International Programs.

IV ORGANIZATION

Meeting Chairman: Mr Vladimir Troyanov
First Deputy Director of the Bochvar Institute (VNIINM)

Meeting Local Coordinator: Ms Ludmila Zabudko,
Senior Scientist, Institute of Physics and Power Engineering (IPPE)
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Scientific Secretary: Mr. Victor Inozemtsev
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1400 Vienna, Austria
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Email: V.Inozemtsev@iaea.org

V. DEADLINE FOR PAPERS AND PARTICIPATION IN THE MEETING

The meeting may be attended only upon official designation. Participants should complete the attached Forms A ([APPLICATION FORM](#)) and B ([SUBMISSION OF A PAPER](#)), if applicable, and send them, together with an abstract of approximately 300 words to the appropriate national authority (Ministry of Foreign Affairs or National Atomic Energy Authority) for subsequent transmission to the IAEA, not later than **15.03.2011**, with copies to the IAEA Scientific Secretaries, Mr Victor Inozemtsev and to the Meeting Coordinator, Ms L. Zabudko. The abstracts should summarize the content and principal conclusions of the paper the author intends to present during the technical meeting.

Prospective participants whose nominations have been received by the IAEA will be notified directly. Also the authors will be notified about the acceptance of their paper(s) and the preliminary programme will be issued by 15.04.2011. As is common in this type of meetings, the programme will include a panel session to permit participants to contribute to the summary and highlights of the meeting and to make recommendations to the IAEA on future work in this field.

On arrival to the meeting venue the authors are requested to bring in electronic form (on a CD or a memory stick) their papers in MS Office Word format and their presentations in Power Point format.

VI. VENUE AND ACCOMMODATION

The meeting will be held at the Institute of Physics and Power Engineering (IPPE), Obninsk, Russian Federation (1 Bondarenko sq., Obninsk, Kaluga region).

Delegates should arrange their accommodation directly with hotels (a list of recommended options will be provided by E-mail by the meeting organizers in due course).

Further details of travel arrangements, technical visit and social events will be provided to participants at the meeting website. The link to this website will be made available in due course.

Designated participants who require a visa to enter the Russian Federation should submit the necessary application form in due time to the nearest diplomatic or consular representative of the Russian Federation.

VII. EXPENDITURES

In accordance with the established rules, Governments or other national authorities are expected to bear the travel and other costs of designated participants in the Technical Meeting. Limited funds are, however, available to help cover the cost of participants from Member States eligible to receive technical assistance under the IAEA's Technical Cooperation Programme. Such assistance can be offered, upon specific request, to one participant per country provided that, in the IAEA's view, this participant will make an important contribution to the meeting. The application for financial support should be made at the time of designation of the participant.

Please note that compensation is not payable by the IAEA for any damage to or loss of the experts' personal property. However, for the period of their engagement with the IAEA, including travel between their residence and the duty station, the designated experts will be covered under the IAEA's insurance policy for permanent total disablement or death resulting from service incurred accidents or illness up to a maximum of € 100000, for permanent partial disablement resulting from service incurred accidents or illness up to a maximum of €100000 and for medical expenses up to a maximum of € 20000 plus € 10000 for supplementary travel and accommodation expenses in case of illness or

injury resulting from service incurred accidents or illness, in accordance with the terms of the IAEA's relevant insurance policy.

VIII. WORKING LANGUAGE

The working language of the meeting will be English. All communications, abstracts, and papers must be sent in English.

IX. VISA

Participants requiring an entry visa to Russia Federation are kindly requested to send **as soon as possible** [this Personal Data form](#) duly completed to Mr. Vladimir Yarovitsin, by email or fax:

Email: nipan@ippe.ru

Fax: + 7(48439) 94792

Please be aware that when applying for a visa you may be asked to show evidence of personal insurance coverage valid during your travel. It is your responsibility to make the necessary arrangements for health insurance coverage, prior to your departure.