

MBIR INTERNATIONAL RESEARCH CENTER. CURRENT STATUS AND PROSPECTS

Wednesday 18 November 2015 12:10 (20 minutes)

The Multipurpose Sodium Fast Research Reactor MBIR is under construction at the site of SSC RIAR, Dimitrovgrad, Ulyanovsk region in the framework of the Russian Government's funded Federal Target Program «New Generation Nuclear Power in 2010-2015's and up to 2020».

The MBIR Reactor which would be the most powerful research facility amongst the group of research reactors both operative, under construction or planned worldwide is intended to replace the world's unique fast research reactor BOR-60, which was built about half a century ago and has been safely operating all these years at the SSC RIAR's site [1]. The top intended mission of the MBIR Reactor is the significant expansion of the ROSATOM's experimental capabilities and the overall enhancement of international R&D infrastructure for future innovative nuclear power system development.

The MBIR Reactor with the unique technical parameters and consumer properties is aimed at solving of the wide range of actual research tasks toward long-term nuclear technology and closed nuclear fuel cycle's justification and demonstration. Besides that, the multitask design and technological features of the MBIR Reactor provide MBIR's using for the applied issues and technology development in the field of medical applications, space and electronic industries, production of radioisotopes and radiation-modified materials.

Basic parameters of the MBIR Research Complex is the following [2, 3]:

☒ thermal power 150 MW

☒ maximum neutron flux $5,3 \cdot 10^{15} \text{ n}/(\text{cm}^2 \cdot \text{s})$

☒ designed life time 50 years

☒ upgradeable experimental capabilities:

up to 3 External Loop Channel with different coolant type (Na / Pb / Pb-Bi / He etc.)

up to 14 Material Test Assemblies, MTAs with different design options in the core (plus up to 36 MTAs in 1st row of blanket)

up to 3 Instrumented In-Pile Experimental Devices (design is developed by a separate performance specifications depending on the User's experimental tasks)

horizontal and vertical experimental channels for neutron radiography, physical researches, medical applications and Silicon's radiation-doping

☒ wide range of post-irradiation examination, PIE facilities and additional facilities (experiment preparation & support labs, analytical labs with the cutting-edge examination devices, offices & meeting rooms etc.) in the MBIR Research Complex

Organization

Joint Stock Company "State Scientific Center –Research Institute of Atomic Reactors"

Country

Russian Federation

Author: Mr TUZOV, Alexander (Joint Stock Company "State Scientific Center - Research Institute of Atomic Reactors")

Presenter: Mr TUZOV, Alexander (Joint Stock Company "State Scientific Center - Research Institute of Atomic Reactors")

Session Classification: New Research Reactor Project

Track Classification: New Research Reactor Projects