



Contribution ID: 580

Type: **not specified**

P2.007 Status and tasks for modernization of TRINITI site infrastructure for the Ignitor project

Tuesday, 18 September 2018 11:00 (2 hours)

The project of tokamak Ignitor is one of the main themes of long-term scientific cooperation between the Russian Federation and the Italian Republic. Currently, negotiations on the development of technical design tokamak Ignitor with placement on the site of TRINITI (Moscow, Troitsk, Russia). The discussion on preparing of the Russian-Italian Inter-government agreement on realization of Ignirtor Project is in ongoing too. Project Ignitor differs significantly from that currently under consideration of the projects of fusion reactors based on the tokamak. Tokamak Ignitor has a super strong magnetic field (13 T), in which the pulse discharge (about 10 sec) flows a powerful discharge current (11MA). The Ohmic heating is the main mechanism of ignition of the thermonuclear fusion reaction

The main purpose of this stage of research was to determine the current state of the infrastructure of power and engineering-physical complexes of TRINITI and the development of technical proposals for the modernization of these complexes for the task of the Ignitor Project implementing.

During the research the current state of equipment and communications of practically all the main elements of power and engineering infrastructure of the tokamak with a strong field (TSP) pilot-bench complex TRINITI was inspected, including stationary and pulsed power supply systems, vacuum, cryogenic, fuel systems and diagnostic complex. Based on the comparison of the dates on technical characteristics of the tokamak Ignitor and requirements to the livelihoods systems of the tokamak from the published sources were prepared technical proposals for the modernization of the experimental bench complex of TSF TRINITI under project objectives Ignitor. The work was carried out as a one of the important steps to prepare the Russian side to participate in the joint Russian-Italian development of the tokamak Ignitor technical project.

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Session Classification: P2