12. Division of Deuterium Experiments Management

Experiments using deuterium gas were planned on LHD. Objectives of LHD deuterium experiments are (1)to realize of high-performance plasmas by confinement improvement and by the improved heating devices and other facilities, (2) to explore the isotope effect study in plasma confinement, (3) to demonstrate the confinement capability of energetic particles (EPs) in helical system and exploration of their confinement studies, and (4) to proceed the extended studies on Plasma-Material Interactions (PMI) with longer time scales.

The agreement for the environmental conservation and the LHD deuterium experiment was concluded between NIFS and the local government bodies of Toki-city, Tajimi-city, Mizunami-city and Gifu-prefecture in March 2013. After that, the preparation for the deuterium experiment have been carried out including the program development.

The Divison of Deuterium experiments management was founded to establish the safety management system and to consolidate experimental apparatus related to the deuterium experiments. To accelerate the preparation for the deuterium experiments, a taskforce named, 'deuterium experiment preparation taskforce' was established under this division. Main jobs of this taskforce are (1) the establishement of manuals to operate LHD and peripheral devices safely during deuterium experiments, (2) check and modification of the regulations related to proceed the deuterium experiments safely, (3) the upgrade of LHD itself, its peripheral devices and the interlock systems for the safe operation during the deuterium experiments, (4) upgrade and optimization of heating devices and diagnostic systems for the deuterium experiments, (5) remodeling the LHD building and related facilities, and so on. These jobs are proceeded with the cooperation with the LHD board meeting and the division of health and safety promotion.

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