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Present Status of FIREX Project for Ignition and Burn HIROSHI AZECHI, ILE, Osaka University, FIREX PROJECT TEAM, GRADUATE SCHOOL OF ENGINEERING, OSAKA UNIVERSITY TEAM, NATIONAL INSTITUTE FOR FUSION SCIENCE TEAM — The first phase of the FIREX (Fast Ignition Realization Experiment) project was officially approved by Japanese Government on January 2003. The goal of FIREX-I is to demonstrate fast heating of a fusion fuel up to the ignition temperature of 5-10 keV. Although the fuel of FIREX-I is too small to be actually ignited, sufficient heating will provide the scientific viability of ignition-and-burn by increasing the laser energy thereby increasing the fuel size. Based on the result of FIREX-I, the decision of the start of FIREX-II to achieve ignition-and-burn will be made. The FIREX program is being carried out by collaboration of the Institute of Laser Engineering, Osaka University and the National Institute for Fusion Science, including development of cryogenic targets, holistic simulation systems, and diagnostic equipment. We have recently made high energy of 10 kJ from the heating laser. The segmentation of gratings for pulse compressors has been demonstrated. The cryogenic target development and diagnostic development will be extensively reviewed. We also consider hydrodynamic heating (impact fast ignition) as an alternative heating mechanism to those based on fast electrons and/or ions.

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