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**Heating and Current drive of FRC plasma formed by Rotating Magnetic Field** M. INOMOTO, N. HASEGAWA, K. KITANO, S. OKADA, Osaka Univ. — Additional heating and current drive of FRC plasma formed by rotating magnetic field (RMF) is studied in FIX (FRC Injection Experiment) device. The RMF is a novel formation and sustainment method of FRC plasma and quasi-steady FRC discharge in a quartz vacuum vessel was reported [1]. In FIX device, we have demonstrated that the RMF method is available for a metal chamber [2]. Since the RMF antennas are located inside the vessel, large power loss arises from induced current on the vessel wall, which prevents the plasma density and temperature to increase. Nevertheless, FRC formation process by the RMF method is quite stable and reproducible, and the combination of the RMF and other current drive/heating method will provide efficient formation method to achieve FRC plasma with high temperature and density. In addition to the existing NBI system, we are constructing a center solenoidal coil for Ohmic heating and current drive of FRC plasma formed by RMF. Experimental results of FRC discharge with RMF and Ohmic /NBI heating will be presented. [1] A.L. Hoffman, et al., Nucl. Fus. 45, 176 (2005); Phys. Plasmas 13, 012507 (2006). [2] K. Kitano, et al., Bulletin of the Am. Phys. Soc. 49, 189 (2004).

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