

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Development of neutral beam injection system by use of washer gun plasma source HEIZO IMANAKA, University of Tokyo, HIROTAKA KAJIYA, YUICHI NEMOTO, AKIYOSHI AZUMA, TOMOAKI ASAI, Nihon University, TAKUMA YAMADA, MICHIAKI INOMOTO, YASUSHI ONO, University of Tokyo, UNIVERSITY OF TOKYO TEAM, NIHON UNIVERSITY TEAM — For the past ten years, we have been investigating high-beta Spherical Tokamaks (ST) formation using reconnection heating of their axial merging in the TS-4 experiment, University of Tokyo. The produced ST was observed to have the maximum beta of 50-60% right after the merging of two STs. A key issue after the formation is to maintain the produced high-beta ST over 100 Alfvén times for its stability check. A new low-cost pulsed neutral beam injection (NBI) system has been arranged for its sustainment experiment. Its advantages are 1) low voltage (15kV for low-field side of ST) and high current (20A), 2) maintenance-free, 3) low-cost. The conventional filament plasma source was replaced by the washer gun to realize air-cooled and maintenance free NBI system. In its startup experiment, we already extracted the maximum beam current of 3.7A for then acceleration voltage of 10kV successfully. This result suggests that the increase in the acceleration voltage and several conditioning work will realize its designed beam parameters of 15kV, 20A.

Heizo Imanaka
University of Tokyo

Date submitted: 19 Jul 2008

Electronic form version 1.4