Contribution ID: **346** Type: **Poster**

FTP/P1-18: Progress in the Development of Long Pulse Neutral Beam Injectors for JT-60SA

Tuesday, October 9, 2012 8:30 AM (4 hours)

To realize a 100 s injection of neutral beams for JT-60 Super Advanced (JT-60SA), the feasibility of the long-pulse production of the ion beams is investigated. Using the JT-60 positive ion source, the long-pulse production of the positive ion beams is confirmed to be feasible for JT-60SA by analyzing the results obtained in the productions of full power D+ ion beams of 85 keV, 27.5 A for 30 s and a half power H+ ion beams of 60 keV, 18A for 200 s. This shows that the JT-60 positive ion source is expected to be reused in JT-60SA without modifications. To realize a stable acceleration of the high current D- ion beams of 500 keV for 100 s without interruptions due to breakdowns, vacuum voltage holding capability of the multi-aperture grid designed for JT-60 SA is firstly clarified in the world. Based on results, the gap length of the accelerator was tuned for the grid area and number of the apertures for JT-60SA. As the result, high voltage holding during 100 s without breakdowns was attained at 200 kV for one acceleration gap at an optimum gap length for sufficient suppressions of the beam losses. This suggests that stable long-pulse acceleration to 500 keV could be expected for three acceleration stages in JT-60SA.

Country or International Organization of Primary Author

Japan

Primary author: Mr HANADA, Masaya (Japan)

Co-authors: Dr KOJIMA, Atsushi (Japan Atomic Energy Agency); Dr OH, B.H. (Korea Atomic Energy Research Institute); Dr CHANG, D.H. (Korea Atomic Energy Research Institute); Mr SEKI, Hiroshi (Japan Atomic Energy Agency); Dr TOBARI, Hiroyuki (Japan Atomic Energy Agency); Dr LEE, K.W. (Korea Atomic Energy Research Institute); Mr USUI, Katsutomi (Japan Atomic Energy Agency); Mr MOGAKI, Kazuhiko (Japan Atomic Energy Agency); Dr OASA, Kazumi (Japan Atomic Energy Agency); Dr GRISHAM, Larry (Princeton Plasama Physics Laboratory); Mr OZEKI, Masahiro (Japan Atomic Energy Agency); Dr TANIGUCHI, Masaki (Japan Atomic Energy Agency); Mr KOMATA, Masao (Japan Atomic Energy Agency); Dr KASHIWAGI, Mieko (Japan Atomic Energy Agency); Mr KAZAWA, Minoru (Japan Atomic Energy Agency); Mr AKINO, Noboru (Japan Atomic Energy Agency); Mr SEKI, Norikazu (Japan Atomic Energy Agency); Dr JEONG, S.H. (Korea Atomic Energy Research Institute); Prof. KOBAYASHI, Shinichi (Saitama University); Mr SASAKI, Shunichi (Japan Atomic Energy Agency); Mr NEMOTO, Syuji (Japan Atomic Energy Agency); Mr SHIMIZU, Tatsuo (Japan Atomic Energy Agency); Mr ENDO, Yasuei (Japan Atomic Energy Agency); Dr YAMANOU, Yasushi (Saitama University); Dr WATANABE, kazuhiro (Japan Atomic Energy Agency); Dr INOUE, takashi (Japan Atomic Energy Agency)

Presenter: Mr HANADA, Masaya (Japan)

Session Classification: Poster: P1

Track Classification: FTP - Fusion Technology and Power Plant Design