Abstract Submitted
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Development of Multi-pulse Compact Toroid Injector System for C-2U I. ALLFREY, E. GARATE, M. MOREHOUSE, T. ROCHE, H. GOTA, T. VALENTINE, W. WAGGONER, S. PUTVINSKI, M. CORDERO, Tri Alpha Energy, T. ASAI, T. MATSUMOTO, J. SEKIGUCHI, Nihon University, THE TAE TEAM — The C-2U [1] experiment aims at sustaining a dynamically formed field reversed configuration (FRC) for 5+ ms via injection of 10+MW of neutral beams. One of the systems currently used to refuel the C-2U plasma is a single pulse compact toroid injector (CTI) [2]. The CTI is a magnetized co-axial plasma gun, which generates a spheromak-like plasma that is injected into the core of the advanced beam-driven FRC of C-2U. In order to refuel the recent long-lived plasmas in C-2U, a multi-pulse CTI system, whose modular design allows for expandable burst numbers, is being designed. Details of the pulsed power systems used to energize the single pulse and the upgraded multi-pulse CTI will be discussed. Results of injector performance carried out on a dedicated test stand as well as some refueling data on C-2U will also be presented.

[1] M. Binderbauer et al., Physics of Plasmas, 22, 056110 (2015)
[2] T. Matsumoto et al., Bull. Am. Phys. Soc. 59, UP8.00008 (2014)

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