

Abstract Submitted
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Development of a repetitive compact torus injector¹ TAKUMI ONCHI, Kyushu University, DAVID MCCOLL, University of Saskatchewan, MYKOLA DREVAL, NSC KIPT, AKBAR ROHOLLAHI, CHIJIN XIAO, AKIRA HIROSE, University of Saskatchewan, HIDEKI ZUSHI, Kyushu University — A system for Repetitive Compact Torus Injection (RCTI) has been developed at the University of Saskatchewan. CTI is a promising fuelling technology to directly fuel the core region of tokamak reactors. In addition to fuelling, CTI has also the potential for (a) optimization of density profile and thus bootstrap current and (b) momentum injection. For steady-state reactor operation, RCTI is necessary. The approach to RCTI is to charge a storage capacitor bank with a large capacitance and quickly charge the CT capacitor bank through a stack of integrated-gate bipolar transistors (IGBTs). When the CT bank is fully charged, the IGBT stack will be turned off to isolate banks, and CT formation/acceleration sequence will start. After formation of each CT, the fast bank will be replenished and a new CT will be formed and accelerated. Circuits for the formation and the acceleration in University of Saskatchewan CT Injector (USCTI) have been modified. Three CT shots at 10 Hz or eight shots at 1.7 Hz have been achieved.

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