

Abstract Submitted
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Recent results in the TCS-Upgrade device J.A. GROSSNICKLE, A.L. HOFFMAN, P.A. MELNIK, K.E. MILLER, R.D. MILROY, G.C. VLASES, University of Washington, RPPL TEAM — The original TCS experiment has demonstrated the robust ability to form and sustain FRCs in steady-state using Rotating Magnetic Fields (RMF). However, temperatures were limited by impurity radiation to 10s of eV. A new device, TCSU, was built with a bakable ultra-high vacuum chamber in order to reduce impurities and overall recycling. Within the first few weeks of operation TCSU achieved sustained temperatures much higher than those in TCS. Impurity seeding experiments implied very low levels of oxygen, carbon, and silicon, using only glow discharge wall conditioning. This suggests very low radiated power, in agreement with bolometric measurements. To further lower impurity content, siliconization and Ti-gettering have also been used for wall conditioning. A 2-D internal magnetic probe has been installed that gives radial profiles of both toroidal and poloidal fields. Results from the wall conditioning and internal probe studies will be reported.

James Grossnickle
University of Washington

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