

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

The Use of a 28 GHz Gyrotron for EBW Startup Experiments on MAST¹ J.B. CAUGHMAN, T.S. BIGELOW, S.J. DIEM, Y.K.M. PENG, D.A. RASMUSSEN, ORNL, V. SHEVCHENKO, J. HAWES, B. LLOYD, UKAEA Fusion, Culham Science Centre — The use of electron Bernstein waves for non-inductive plasma current startup in MAST has recently been demonstrated [1]. The injection of 100 kW at 28 GHz generated plasma currents of up to 33 kA without the use of solenoid flux, and limited solenoid assist resulted in up to 55 kA of plasma current. A higher power 28 GHz gyrotron, with power levels of up to 300 kW for 0.5 seconds, is currently being commissioned. It is being used to investigate the scaling of startup current with microwave power and power profile as a function of time. Power modulation experiments are also being explored. Gyrotron performance and experimental results will be presented.

[1] V. Shevchenko, et al., Proceedings of the 15th Joint Workshop on ECE and ECRH, Yosemite, USA, p. 68 (2009)

¹Oak Ridge National Laboratory is managed by UT-Battelle, LLC, for the U.S. Dept. of Energy under contract DE-AC05-00OR22725. Work supported by USDOE with grant DE-FG02-04ER54765.

Larry Baylor
ORNL

Date submitted: 18 Jul 2009

Electronic form version 1.4