Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Development of Microwave Imaging Reflectometry for KSTAR[1]

W. LEE, I. HONG, Y. NAM, M. KIM, J. LEEM, G.S. YUN, H.K. PARK, Postech, Y.G. KIM, K.W. KIM, Kyungpook National University, C.W. DOMIER, N.C. LUHMANN, JR., University of California at Davis — A microwave imaging reflectometry (MIR) system for KSTAR is being developed to measure 2-D (poloidal $\times$ radial) image of the electron density fluctuations for turbulence based transport study. Prior to the full system, two-frequency prototype system will be tested for the 2012 KSTAR campaign. The system is capable to measure poloidal wave numbers from 0.5 to 2 cm^{-1} with a 16 channel array of detectors that can image $\sim$ 13 cm length of the poloidal plane. Due to the standing wave problem of lens based system (sharing optics with 2nd ECEI system), a new system based on reflective optics is being designed. The RF electronics, capable of simultaneous measurement of the reflected beams from two cut-off layers, has been developed and the laboratory test results with a corrugated reflecting target will be presented.

[1]Work supported by NRF Korea and US DOE.

Gunsu Yun
Postech

Date submitted: 15 Jul 2011 Electronic form version 1.4