

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Design of a Prototype for the In Situ Calibration Source for the ECE Diagnostic on ITER**<sup>1</sup> P.E. PHILLIPS, M. E. AUSTIN, W.L. ROWAN, Fusion Research Center, Univ. of Texas, J. BENO, A. OUROUA, CEM-UTA, R.F. ELLIS, Univ. of MD — A large area (200mm diameter) calibration source will be prototyped for ITER. The source will generate blackbody emission (emissivity > 0.7) for frequencies greater than 120 GHz in the ITER vacuum environment. The device is a primary vacuum component (VQC 1B) and is subject to stringent vacuum requirements that will be tested in the case of this prototype. The source will operate at temperatures up to 800 °C though it will not be actively heated during plasma operation. A major challenge is to assure high reliability both in maintenance of calibration and mechanical integrity. SiC has been selected as the active emissive surface. Prior to construction of the prototype, candidate-heating methods will be critically examined for reliability, efficiency, and ITER compatibility. Results of test of a resistively heated source will be presented. A progress report on the development of the prototype will also be presented.

<sup>1</sup>Supported by US-IPO under PPPL-S0007684-R.

P P  
Fusion Research Center, Univ. of Texas

Date submitted: 21 Jul 2009

Electronic form version 1.4