Abstract Submitted for the 51st Annual Meeting
Division of Plasma Physics
November 2–6, 2009, Atlanta, Georgia

Operational Experience with the Six Gyrotron System on DIII-D,* Y.A. Gorelov, J. Lohr, M. Cengher, D. Ponce, *GA* — For the 2009 experimental campaign, the DIII-D gyrotron system comprised six 110 GHz gyrotrons in the 1 MW class. This marks the completion of a significant upgrade to the ECH system that included the replacement of three short pulse gyrotrons with three long pulse gyrotrons and the acquisition of an additional 3 long pulse tubes, plus the construction of the high voltage power supplies and control infrastructure. As conditioning of the last gyrotron continues during experiments, the rf power from the six tubes has been set at 4.3 MW giving, at 75% transmission efficiency, an injected power of 3.2 MW for the 4 s pulses typically being used. Improved diagnostic capability, such as video monitoring and Langmuir probes at the launchers, external current monitors for the gyrotron magnets and fast fault handling using Field Programmable Gate Array logic, has provided enhanced protection for the system. Calorimetric loading measurements and the thermal performance of the entire system will be presented.

*Work supported by the US DOE under DE-FC02-04ER54698.