

Abstract Submitted
for the DPP01 Meeting of
The American Physical Society

Sorting Category: 5.6.2 (Experimental/Observational)

High Power Performance of the DIII-D Gyrotron System¹ J. LOHR, R.W. CALLIS, W.P. CARY, R.I. PINSKER, D. PONCE, R. PRATER, General Atomics — The gyrotron installation on the DIII-D tokamak comprises four gyrotrons in the 1 MW class at 110 GHz. Using the maximum capability of the system, 2.0 s pulse length and greater than 2.0 MW injected power, a comprehensive experimental program has been completed. The effect of localized current drive on the 3/2 and 2/1 neoclassical tearing modes was investigated. Transport studies were performed using modulation and perpendicular injection. Initial studies of $j(r)$ control with off-axis ECCD leading to advanced tokamak operation were performed. Total injected energy of greater than 4.0 MJ per tokamak pulse has regularly been achieved with 97 MJ integrated energy on the best single day of operations. Reliability, defined in terms of achieved versus requested power/pulse length, has steadily improved during development of the system to >90%, which compares favorably with the neutral beam systems. Polarization measurements of the injected rf beams verified the performance of the polarizer mirrors and an automatic calorimetry capability was developed. Detailed infrared measurements of diamond window performance were made. Plans for the addition of two more gyrotrons will be described.

¹Supported by US DOE under Contract No. DE-AC03-99ER54463.

☐
☒

Prefer Oral Session
Prefer Poster Session

J. Lohr
lohr@fusion.gat.com
General Atomics

Special instructions: Poster 24, Stability, MHD, Current Drive, Advanced Tokamak
--

Date submitted: July 19, 2001

Electronic form version 1.4