

Performance, diagnostics, controls and plans for the gyrotron system on the DIII-D tokamak

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Abstract

The DIII-D ECH complex is being upgraded with three new depressed collector gyrotrons. The performance of the existing system has been very good. As more gyrotrons having higher power are added to the system, diagnostics of gyrotron operation, optimization of the performance and qualification of components for higher power become more important. A new FPGA-based gyrotron control system is being installed, additional capabilities for rapid real time variation of the rf injection angles by the DIII-D Plasma Control System are being tested and infrastructure enhancements are being completed. Longer term plans continue to include ECH as a major component in the DIII-D heating and current drive capabilities.