

Abstract Submitted
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Capability of the 110 GHz Installation on the DIII-D Tokamak¹ J. LOHR, Y.A. GORELOV, K. KAJIWARA, D. PONCE, R.W. CALLIS, J.R. FERRON, R.I. PINSKER, R. PRATER, GA, F.W. BAITY, JR., ORNL, R.A. ELLIS, PPPL — Microwave sources are now available which are capable of generating up to 1 MW at the electron cyclotron frequency and its harmonics for time periods long compared with current redistribution times in DIII-D. The power can be used for heating or to drive electric currents at very specific target locations in tokamak plasmas. Direct measurements of transport coefficients, suppression of instabilities and control of the current density profile leading to new regimes of high performance in high temperature plasmas are among the experimental possibilities enabled by this technology. The ECH complex comprises six 110 GHz units in the 1 MW class, associated power supplies and transmission lines, which can deliver over 4 MW to the plasma. The launch angles can be varied toroidally and poloidally in the tokamak upper half plane. Output power can be modulated according to a predetermined program or as commanded by the plasma control system feeding back on measured plasma parameters. The gyrotron reliability is comparable with that of neutral beam systems.

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☒ Prefer Oral Session
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