

Abstract Submitted
for the DPP97 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

Toroidal Velocity and RF Power in DIII-D¹ J.S. DEGRASSIE, D.R. BAKER, K.H. BURRELL, S.C. CHIU, H. IKEZI, J. LOHR, Y.R. LIN-LIU, C.C. PETTY, R.I. PINSKER, R. PRATER, General Atomics, B.W. RICE, Lawrence Livermore National Laboratory — Shear in the plasma velocity has emerged as an indicator of transport barrier formation, thus methods of affecting the plasma velocity are important to understand. In beam heated discharges on DIII-D it is observed that the application of Fast Wave (FW) power reduces the toroidal velocity, especially in discharges which have an internal transport barrier and concomitant high core velocity. To date, only co-beam injection has been used. The FW slowing occurs for either co or counter directed wave spectra. Recently, electron cyclotron heating (ECH) using the 2nd harmonic at 110 GHz has become operational on DIII-D. Here too, beam heated discharges with good core confinement show a reduction of the toroidal velocity with ECH. The new DIII-D MSE electric field diagnostic will allow near realtime measurements of the change in internal electric field with the application of rf power. These effects will be described for a variety of discharges.

¹Work supported by U.S. DOE Contracts DE-AC03-89ER51114, and W-7405-ENG-48.

Prefer Oral Session
 Prefer Poster Session

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Date submitted: July 7, 1997

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