Abstract Submitted for the Twelfth Topical Conference on Radio Frequency Power in Plasmas April 1–3, 1997, Savannah, Georgia

Category Number and Subject:

[ ] Theory [**x**] Experiment

Fast Wave Power Reduction of Toroidal Rotation in DIII–D,* J.S. deGrassie, Y.R. Lin-Liu, D.R. Baker, C.C. Petty, C.M. Greenfield, R. Prater, *General Atomics* — The application of fast wave power in DIII–D has proven effective for both electron heating and current drive.[1] Since the last RF Conference FW power has been applied to advanced confinement regimes in DIII–D; negative or weak central shear (NCS), VH– and H–modes, high β_p, and high-ℓ_i. Typically these regimes show enhanced confinement of toroidal momentum exhibited by increased toroidal rotation velocity. Indeed, layers of large shear in toroidal velocity are associated with transport barriers. A rather common occurrence in these experiments is that the toroidal rotation velocity is decreased when the FW power is turned on, to lowest order independent of whether the antennas are phased for co or counter current drive. At present all the data is for co-injected beams. Most of the data set contains discharges with 2–3 MW of coupled FW power added to 2–8 MW of neutral beam injection. The central toroidal rotation can be reduced to 1/2 of the non-FW level. One possibility is that the enhanced T_e due to FW electron heating is causing an increase in growth rate of ion temperature gradient driven turbulence, thereby restoring some of the transport turned off in the enhanced confinement mode. This paper will focus upon the effect in NCS discharges with co-beam injection.

*Work supported iby U.S. Department of Energy under Contract DE-AC03-89ER51114.

[1]J.S. deGrassie et al., Proc 11th Conf on RF Power in Plasma, p 173 (1995).

[**x**] Prefer Poster Session

[ ] Prefer Oral Session

[ ] No Preference

[ ] This poster/oral should be placed in the following grouping: (specify order)

[ ] Special Facilities Requested (e.g., movie projector)
_____
_____

[ ] Other Special Requests
_____
_____

Submitted by:

_____
(Signature of APS member)

John S. deGrassie
(Same Name Typewritten)

General Atomics
P.O. Box 85608
San Diego, CA 92186-9784
(Address)

(619)455-2098/(619)455-2838
Phone/Fax

degrassie@gat.gav.com
Email Address