**Abstract Submitted for the Thirteenth Topical Conference
on Applications of Radio Frequency Power to Plasmas
April 12–14, 1999, Annapolis, Maryland**

Category Number and Subject:

[ ] Theory   [**x**] Experiment

Modeling of Electron Cyclotron Current Drive Experiments on DIII–D,[*] Y.R. Lin-Liu, V.S. Chan, T.C. Luce, R. Prater, *General Atomics,* O. Sauter, *CRPP/EPFL,* R.W. Harvey, *CompX* — The standard approach of modeling of electron cyclotron current drive (ECCD) efficiency in tokamaks has been based on the collisionless assumption. Comparing the modeling results with recent ECCD experimental results on DIII–D[1] indicated that the collisionless theory is somewhat conservative in predicting the off-axis current drive. In this work we present a quantitative study of collisionality modification of trapped electron effects on the current drive efficiency by using the adjoint techniques. Both approximate analytic and numerical solutions of the adjoint equations for current drive (without invoking bounce average) are considered. The impact of finite collisionality on off-axis ECCD for recent DIII–D experiments and the projection to high performance advanced tokamak conditions in DIII–D will be discussed.

[1]T.C. Luce *et al.*, Proc. 17th IAEA Conf., Yokahama (1998) to be published.

[**x**]   Prefer Poster Session
[ ]   Prefer Oral Session

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