

Abstract Submitted  
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**Evaluation of the RF Quasilinear Operator Using the TORIC Spectral Solver**<sup>1</sup> P.T. BONOLI, J.C. WRIGHT, MIT - PSFC, R.W. HARVEY, CompX, C.K. PHILLIPS, E. VALEO, PPPL, L.A. BERRY, E.F. JAEGER, ORNL, M. BRAMBILLA, R. BILATO, IPP-Garching, RF SCIDAC TEAM — Recently the full-wave solver TORIC has been modified to employ the plasma response for an arbitrary particle distribution [1]. In order to couple this code to a Fokker Planck solver for self-consistent evolution of nonthermal particle distributions it is first necessary to evaluate the RF quasilinear operator ( $D_{ql}$ ) using the electric fields expressed in the spectral basis representation of TORIC [2]. The present work employs a technique [3] where  $D_{ql}$  is written in terms of the local power dissipation, which has been reconstructed from the electric fields in the full-wave solver. This technique will also be compared with more simplified treatments of  $D_{ql}$  that have been carried out in the past using TORIC [4].

[1] E. Valeo et al., APS-DPP Meeting (2006).

[2] J. C. Wright, PhD Thesis, Princeton University, June, 1998.

[3] E. F. Jaeger et al., Physics of Plasmas **13**, 056101 (2005).

[4] M. Brambilla, Nucl. Fusion **34**, 1121 (1994).

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