

# **The Effect of Toroidal Field Ripple Confined Alphas in TFTR D–T Plasmas**

H.H. DUONG,<sup>a</sup> R.K. FISHER, S.S. MEDLEY,<sup>b</sup> M.P. PETROV,<sup>c</sup>  
N.N. GORELENKOV,<sup>d</sup> R.V. BUDNY,<sup>b</sup> D.K. MANSFIELD,<sup>b</sup> J.M. McCHESNEY,  
P.B. PARKS, A.L. ROQUEMORE,<sup>b</sup> R.B. WHITE,<sup>b</sup> and S.J. ZWEBEN<sup>b</sup>

General Atomics

P.O. Box 85608, San Diego, California 92186-9784, U.S.A.

## ***Abstract***

The Pellet Charge Exchange (PCX) diagnostic on the Tokamak Fusion Test Reactor (TFTR) presently measures trapped alpha distribution functions with very small pitch angle ( $v_{\parallel} / v \sim 0.05$ ) at the midplane. The measured PCX alpha signal exhibits a depletion region near the outboard region. Results of the alpha energy spectra and radial profile suggest stochastic ripple diffusion is the cause of the depletion. Comparison of the ripple stochastization boundary with Goldston-White-Boozer theory also shows the correct functional dependence on alpha energy and  $q$ -profile.

---

<sup>a</sup> General Atomics ORAU Fellow at Princeton.

<sup>b</sup> Princeton Plasma Physics Laboratory, Princeton University, Princeton, New Jersey, U.S.A.

<sup>c</sup> Ioffe Physical-Technical Institute, St. Petersburg, Russia.

<sup>d</sup> TRINITI, Troisk, Russia.