

Abstract Submitted
for the DPP02 Meeting of
The American Physical Society

Sorting Category: 5.6.2 (Experimental)

Error Field Generated by SOL Current and its Possible Role in Tearing Modes in DIII-D Tokamak¹

H. TAKAHASHI, E.D. FREDRICKSON, Princeton University, M.J. SCHAFFER, General Atomics, M.E. AUSTIN, University of Texas, J.G. WATKINS, Sandia National Laboratories — A discharge, stable for classical tearing modes and initially devoid of detectable magnetic islands, later develops small rotating islands that are identifiable in ECE signals but too small to be the sole source of large oscillating magnetic perturbations observed by Mirnov coils. The observed islands are also much smaller than calculated saturated Neoclassical Tearing Mode (NTM) islands. Oscillating scrape-off-Layer (SOL) current is also present at the same frequency. It is toroidally non-axisymmetric, and has the potential for generating error field. The oscillations eventually lock, and islands appear to grow thereafter as SOL current rises strongly. This suggests that most of Mirnov signals originated from SOL current, rather than the islands, and that error field generated by the SOL current may have played a role in the growth of tearing modes in oscillating and locked phases.

¹Work supported by US DOE Contract Nos. DE-AC02-76CH03073, DE-AC03-99ER54463, DE-FG03-97ER54415 and DE-AC04-94AL85000.

☐
☒

Prefer Oral Session
Prefer Poster Session

H. Takahashi
htakahashi@pppl.gov
Princeton University

Special instructions: Poster 28, Edge/Divertor/Transport
--

Date submitted: July 19, 2002

Electronic form version 1.4