

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

NTM Suppression and Avoidance at DIII-D Using Real-Time Mirror Steering¹ E. KOLEMEN, R.A. ELLIS, Princeton Plasma Physics Laboratory, R.J. LA HAYE, J. LOHR, S. NORAKY, B.G. PENAFLORE, A.S. WELANDER, General Atomics — The Electron Cyclotron Current Drive (ECCD) real-time steerable mirrors at DIII-D were developed and successfully operated to avoid and suppress neoclassical tearing modes (NTM). The NTM avoidance/suppression control logic moves the deposition location of the ECCD with six sets of real-time steerable mirrors in order to align it with the NTM location. The steerable mirrors enable changing the deposition location at approximately 2 m/s with accuracy of a few millimeters while keeping the plasma radial position and the toroidal field constant during NTM avoidance/suppression. The real-time system enables simultaneous avoidance/suppression of multiple magnetic islands (such as $m/n = 2/1$ and $3/2$ islands).

¹Supported by the US Department of Energy under DE-AC02-09CH11466 and DE-FC02-04ER54698.

Egemen Kolemen
Princeton Plasma Physics Laboratory

Date submitted: 13 Jul 2012

Electronic form version 1.4