

**Abstract Submitted for the 54th Annual Meeting
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Category Number and Subject: 5.5.0 ITER and Magnetic Confinement
Development

Theory Experiment

NTM Suppression and Avoidance at DIII-D Using Real-Time Mirror Steering,* E. Kolemen, R.A. Ellis, *Princeton Plasma Physics Laboratory*; R.J. La Haye, J. Lohr, S. Noraky, B.G. Penaflor, 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).

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