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Demonstration of ECCD Stabilization of m/n=2/1 NTMs in the Equivalent Low-Torque ITER Baseline Scenario in DIII-D[1] ROBERT LA HAYE, EDWARD STRAIT, General Atomics, KEJ OLOFSSON, None, ANDERS WELANDER, General Atomics, JEREMY HANSON, Columbia University, OLIVIER SAUTER, SPC-EPFL — Experiments in DIII-D are studying how best to minimize the average Electron Cyclotron Current Drive power directed at q=2 for stabilization of neoclassical tearing modes in discharges with the ITER shape and equivalent low-torque, low q95˜3.1 and low betaN˜1.8. ITER relies on localized ECCD to stabilize NTMs that would otherwise wall-lock and lead to disruption. The work contrasts the control strategies of pre-emption by continuous ECCD at the rational surface ("Active Tracking") vs. suppression by a pulse of ECCD whenever a growing mode is detected ("Catch & Subdue"). The large rho˜0.75 for q=2 and concomitant low Te make the EC current drive relatively weak per MW so that the EC power from 4˜5 well-aligned gyrotrons of 2.5˜2.8 MW, is just marginal for stabilization at about 70% of the neutral beam injection power. The low-torque makes early mode detection and good initial alignment imperative for prompt suppression before wall-locking. Requirements for stabilization will be presented.

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