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NTM Stabilization With Optimal ECCD Alignment in DIII-D¹ R.J. LA HAYE, General Atomics, FOR THE DIII-D TEAM — A key focus of the DIII-D program is establishing the basis for electron cyclotron current drive stabilization of neoclassical tearing modes in ITER. In the recent campaign, important issues evaluated include: (1) the effectiveness of island suppression as a function of the width of the ECCD and alignment of the ECCD with respect to the island location, (2) real-time compensation for the effect of refraction on the ECCD absorption location, and (3) preemptive ECCD for avoiding either the m/n = 3/2 or m/n = 2/1mode. With preemptive ECCD, stable operation up to the free boundary beta limit was achieved without the m/n = 2/1 NTM becoming unstable. A key element for the success of ECCD in NTM elusion at higher beta is the use of real-time Motional Stark Effect EFIT reconstructions to accurately locate rational surfaces to keep the ECCD aligned without a mode. Plans for the upcoming campaign will also be presented.

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