

Abstract Submitted
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Prediction and Control of Locked Modes at DIII-D¹ F. VOLPE, Max-Planck-Gesellschaft, R.J. LA HAYE, J.T. SCOVILLE, E.J. STRAIT, A.S. WELANDER, General Atomics — Control of rotating neoclassical tearing modes (NTMs) by localized electron cyclotron current drive (ECCD) has proved successful on various tokamaks. However, slowly rotating NTMs like those expected in ITER or those obtained at DIII-D for balanced neutral beam injection are more prone to locking. Because they can lock in a toroidal position where they are not accessible to the gyrotron beams, it is proposed to force them to rotate or to lock them with a programmed toroidal phase, by applying a rotating or static, respectively, resonant magnetic perturbation. In both cases, intervention requires a timely knowledge of when and where the mode is going to lock. Here the results of simple locking predictors based on real-time analysis of magnetic diagnostics will be presented and their performances and reliability statistically assessed over a number of locking events. Preliminary control results will also be presented.

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