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**Resistive Wall Mode Onset and Control in DIII-D**<sup>1</sup> G.A. NAVRATIL, J. BIALEK, A. BOOZER, A.M. GAROFALO, Columbia University, E.J. STRAIT, R.J. LA HAYE, J.T. SCOVILLE, General Atomics, E.A. LAZARUS, Oak Ridge National Laboratory, E. FREDRICKSON, M. OKABAYASHI, Princeton Plasma Physics Laboratory — The resistive wall mode (RWM) has been predicted to limit the beta on wall stabilized AT plasmas, and these instabilities have been observed to limit DIII-D plasmas to  $\leq 40\%$  above the no-wall beta limit. Experiments were carried out on single null  $B_t = 2.1$  T,  $I_p = 1.4$  to 1.8 MA plasmas whose calculated no-wall beta limit was  $\beta_N \sim 2$ . The RWM mode is observed to grow as the plasma rotation at the  $q = 3$  surface decreases below 1 to 6 kHz, with a growth time of 3 to 5 ms. The mode has little or no toroidal rotation and its growth time is comparable to the dominant vacuum vessel eigenmode time constant. The use of the existing six-segment C-coil to stabilize the RWM as part of a feedback control system has been modeled with a 3D electromagnetic code predicting partial to complete stabilization of the RWM depending on  $\beta_N$ . Preliminary open loop experiments using the C-coil for mode control will be described.

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Prefer Oral Session  
 Prefer Poster Session

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Special instructions: DIII-D Oral Session I, immediately following Osborne

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