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Test of a Model for Limits to Pedestal Pressure Gradient in DIII-D[1] R.J. GROEBNER, P.B. SNYDER, T.H. OSBORNE, A.W. LEONARD, General Atomics, T.L. RHODES, L. ZENG, UCLA, Z. YAN, G.R. MCKEE, University of Wisconsin-Madison — The EPED1 pedestal model predicts that kinetic ballooning modes (KBM) limit the magnitude of the H-mode pedestal pressure gradient, prior to the onset of the ELM instability. Time-resolved measurements of the total pedestal pressure profile are used to test this hypothesis in Type I edge localized mode (ELM) discharges in DIII-D. These measurements show that there is a significant spatial and temporal variation of the pedestal pressure gradient as the pedestal builds up between ELMs. In some regions of the pedestal, particularly in the outer half of the pedestal, the pressure gradient becomes nearly time-stationary long before an ELM crash. When this happens, increases of pressure gradient often are observed in other regions of the pedestal. Thus, the entire pedestal pressure gradient does not usually saturate at one time. The observed pressure gradients will be examined to see if they scale with predictions of linear theory for ballooning modes.

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R.J. Groebner
General Atomics

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