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Modification of Edge Instability Character Through Changes in Discharge Shape[1] J.R. FERRON, R.L. MILLER, L.L. LAO, E.J. STRAIT, T.H. OSBORNE, T.S. TAYLOR, General Atomics, B.W. RICE, Lawrence Livermore National Laboratory — The energy and momentum loss resulting from ELMs is typically sufficient to destroy or prevent formation of the internal transport barriers that result in improved confinement in VH and NCS-type discharges. In DIII–D experiments, decreased ELM amplitude has been obtained by reducing access to the ballooning mode 2nd stable regime in the discharge edge. Access is reduced through increases or decreases in the discharge squareness (more rectangle or triangle-shaped). In both cases, the observed ELM frequency increases by up to a factor of 10 and the edge T_e drop resulting from an ELM is reduced by as much as a factor of 8. At the highest squareness, a transition in ELM character, from rapid but well separated individual events to continuous, low amplitude fluctuations, is observed which appears to be coupled to complete loss of 2nd stable regime access. Simultaneously, the edge pressure gradient decreases to the predicted 1st regime limit. A core transport barrier has been observed during these reduced amplitude ELMs.

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[X] Prefer Oral Session
[ ] Prefer Poster Session

Special instructions: DIII–D Oral Session I, immediately following Murakami

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