

Abstract Submitted
for the DPP98 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

H-mode Pedestal Characteristics on DIII-D¹ T.H. OSBORNE, K.H. BURRELL, R.J. GROEBNER, L.L. LAO, R.L. MILLER, A.D. TURNBULL, General Atomics — The characteristics of the H-mode pedestal are studied in a variety of discharge shapes and plasma conditions on DIII-D. Pedestal characteristics are important in their relation to the overall plasma energy confinement, and to the properties of edge localized modes (ELMs). The width of the H-mode transport barrier was found to be relatively independent of most plasma parameters. In particular experiments in which the pedestal temperature was varied with divertor pumping showed no change in the barrier width. Barrier width was also independent of triangularity in single null discharges. The edge pressure gradient was found to scale as would be expected for ideal infinite n ballooning modes, however the measured pressure gradient was generally significantly above the first stable limit. Stability analysis, including bootstrap current associated with the edge pressure gradient, indicated access to the second stable regime was present in the region of high pressure gradient even in lower q discharges. Low n ideal kink mode calculations indicated that these discharges were unstable to $n > 3$ edge localized modes just prior to a Type I ELM. These edge localized kinks have ballooning character and are destabilized by both increasing edge current density and pressure gradient.

¹Work supported by U.S. DOE Contract DE-AC03-89ER51114.

Prefer Oral Session
 Prefer Poster Session

T.H Osborne
osborne@gav.gat.com
General Atomics

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

Date submitted: July 22, 1998

Electronic form version 1.3