

ABSTRACT

The frequency and amplitude of edge localized instabilities in DIII-D tokamak H-mode discharges are shown to depend on access to the ballooning mode second stability regime in the region of the edge pressure pedestal. Second stability regime access is controlled through variation of the squareness of the discharge shape. An abrupt increase in instability frequency and decreases in instability amplitude and edge pressure gradient are observed when second stability regime access is removed. When the second regime is locally accessible the edge pressure gradient increases to values well above the first stability regime limit.