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Overview of H-Mode Pedestal Studies on the DIII-D Tokamak[1] T.H. OSBORNE, General Atomics, and the DIII-D and C-Mod Teams — H-mode pedestal studies on DIII-D are motivated by the impact of this region on the global energy confinement and stability, and, through ELMs, on the divertor. Studies were divided into work on edge stability, the width of the H-mode transport barrier, and the ELM energy loss mechanism. A lower n edge localized ideal kink-ballooning mode model for edge stability is consistent with the variation in edge pressure gradient with shape, and with the fast growing lower n modes seen as ELM precursors. The transport barrier width is found to be proportional to the edge poloidal β with no explicit temperature dependence. A dimensionally similar comparison with Alcator C-Mod suggests that the barrier width is set by plasma physics rather than the edge neutral source, other work however indicates that the neutral source may set the shape of the density profile. The radial extent of the lower n kink ballooning mode, which is a function of the overall q and pressure profiles, may determine the ELM size.

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