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Radiation loss and confinement performance of Alcator C-Mod.[1]
I. HUTCHINSON, M. REINKE, J. IRBY, Y. LIN, B. LIPSCHULTZ, E. MARMAR, J. RICE, J. TERRY, MIT PSFC — Ultimate performance of tokamaks with high-Z plasma facing components is of great interest for ITER. C-Mod has had molybdenum divertor and limiter since its first operation, and produced some excellent results. However, recent detailed experiments show that Mo radiation is in many cases, especially in H-modes when impurities tend to accumulate, a major limitation on confinement performance. The radiation is predominantly in the outer half of the plasma, but nevertheless causes the central temperature, as well as the edge transport barrier height to decrease. When accumulation is severe, the H-mode is eventually lost when the core radiation exceeds about 60% of the total input power. Boronization can suppress the Mo to a negligible level, but the effect wears off quite quickly in some cases.

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