Abstract Submitted
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Initial results from divertor heat-flux instrumentation on Alcator C-Mod[1] B. LABOMBARD, D. BRUNNER, J. PAYNE, M. REINKE, J.L. TERRY, J.W. HUGHES, B. LIPSCHULTZ, D. WHYTE, MIT PSFC — Physics-based plasma transport models that can accurately simulate the heat-flux power widths observed in the tokamak boundary are lacking at the present time. Yet this quantity is of fundamental importance for ITER and most critically important for DEMO, a reactor similar to ITER but with ∼4 times the power exhaust. In order to improve our understanding, C-Mod, DIII-D and NSTX will aim experiments in FY10 towards characterizing the divertor "footprint" and its connection to conditions "upstream" in the boundary and core plasmas [2]. Standard IR-based heat-flux measurements are particularly difficult in C-Mod, due to its vertical-oriented divertor targets. To overcome this, a suite of embedded heat-flux sensor probes (tile thermocouples, calorimeters, surface thermocouples) combined with IR thermography was installed during the FY09 opening, along with a new divertor bolometer system. This paper will report on initial experiments aimed at unfolding the heat-flux dependencies on plasma operating conditions. [2] a proposed US DoE Joint Facilities Milestone.

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