

Abstract Submitted
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Measurements of heat-flux profiles on the divertor targets of Alcator C-Mod¹ J.L. TERRY, B. LABOMBARD, MIT-PSFC, D. BRUNNER, MIT-PSFC, J.W. HUGHES, M.L. REINKE, MIT-PSFC, G.A. WURDEN, LANL — Acceptable power handling is one of the primary functions - and most challenging problems - for a tokamak divertor. A section of C-Mod's outer divertor has been modified and instrumented in order to measure the incident heat-flux there. Surface temperatures are measured using IR thermography, and the heat-flux "footprints" are derived from those measurements. Peak surface-normal heat fluxes greater than 15 MW/m^2 , corresponding to parallel heat-fluxes $> 300 \text{ MW/m}^2$, are typical in both EDA H-modes and RF-heated L-modes. In EDA H-modes widths (FWHM) of the main peak of the heat-flux profiles are in the range 1.5-4 mm (magnetically mapped to the midplane), and these values help to constrain the major radius and magnetic field dependencies of multi-machine empirical scaling relations for SOL heat-flux widths. Also evident in the heat-flux profiles is a far-SOL "tail" with constant or slowly decreasing heat-flux. Scalings of the "footprint" profile widths with various "engineering" parameters, as well as with the SOL pressure profile widths of the main plasma, will be presented.

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