Abstract Submitted
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Modifications of W and Mo leading edges under plasma loads in DIII-D divertor.[1] D.L. RUDAKOV, I. BYKOV, R.A. MOYER, UCSD, T. ABRAMS, C.P. CHROBAK, H.Y. GUO, B. STAHL, D.M. THOMAS, GA, J.L. BARTON, R.E. NYGREN, J.G. WATKINS, SNL, C.J. LASNIER, LLNL, ANDREY LITNOVSKY, FZJ, P.C. STANGEBY, UTIAS, E.A. UNTERBERG, ORNL — Cracking and melting of W and Mo leading edges were observed in the lower divertor of DIII-D during experiments with intentionally misaligned W monoblocks (MBs) and in the course of the Metal Rings Campaign involving W-coated Mo tile inserts (TIs). MBs were exposed near the attached outer strike point during deuterium and helium L- and H-mode discharges using DiMES. Two of the MBs were misaligned by 0.3 mm and 1 mm, forming leading edges. Particulate ejection from a 1 mm leading edge was observed during the exposure, and evidence of melting and cracking was found post mortem. Two toroidal rings of TIs were installed in the lower outer divertor, the inner one at the floor and the outer one at the shelf. The floor TIs bowed during plasma exposure forming leading edges up to 1.2 mm high; about 40% of these edges experienced melting. Re-solidified melt layers up to 1 mm thick were observed, their shape being consistent with motion in the jxB direction with j driven by electron emission.

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D.M Thomas
GA

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