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Lithium-Metal Infused Trenches: Progress toward a Divertor Solution D.N. RUZIC, P. FIFLIS, M. CHRISTENSON, M. SZOTT, W. XU, S. JUNG, Univ of Illinois - Urbana, T.W. MORGAN, Dutch Institute for Fundamental Energy Research (FOM - DIFFER), K. KALATHIPARAMBIL, Univ of Illinois - Urbana — The application of liquid metal, especially liquid lithium, as a plasma facing component (PFC) has the capacity to offer a strong alternative to solid PFCs by reducing damage concerns and enhancing plasma performance. The Liquid-Metal Infused Trenches (LiMIT) concept is a liquid metal divertor alternative which employs thermoelectric current from either plasma or external heating in tandem with the toroidal field to self-propel liquid lithium through a series of trenches. LiMIT has been tested in several devices, namely HT-7, the UIUC SLiDE and TELS facilities and Magnum PSI at heat fluxes of up to 3 MW/m^{-2}. Results of these experiments, including velocity and temperature measurements, power handling considerations, and preliminary vapor shielding results will be discussed, focusing on the 117 shots performed at Magnum scanning magnetic fields and heat fluxes up to $\sim$ 0.3 T and 3 MW/m^{-2}. Concerns over tritium retention and MHD droplet ejection will additionally be addressed. LiMIT has also been proposed to function as a limiter on the EAST moveable limiter arm and tests have been performed with a prototype module inclined at various angles.

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