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Heat Handling Capabilities of LiMIT under Fusion Relevant Heat Fluxes DANIEL O'DEA, University of Illinois at Urbana-Champaign, RAJESH MAINGI, ZHEN SUN, Princeton Plasma Physics Lab, ALFONSO DE CASTRO, RABEL RIZKALLAH, STEVEN STEMMLEY , DANIEL ANDRUCZYK, University of Illinois at Urbana-Champaign — Liquid Metal (LM) PFCs provide an alternative to current solid PFCs. Flowing LM components present a constantly refreshing surface to the plasma enabling particle handling, heat removal and potential T/D recovery for re-injection. The current popular choice for these PFCs is Li due to its low recycling and low-Z. Low recycling greatly reduces the proportion of neutral H and impurities sputtered into the plasma improving the energy confinement. To further research into this field a LiMIT-type limiter was deployed in EAST allowing for the temperature response of the plate under fusion relevant heat fluxes ($>1 MW/m^2$) to be examined. Temperature profiles on the plate are measured by TCs embedded beneath the surface of the plate, these measurements combined with post-mortem analysis of the plate provide insights into the plate performance during plasma exposure. The LiMIT concept utilizes TEMHD to produce lithium flow along the surface and is cooled by He gas. To supplement the experiment, heat transfer simulations are being done in COMSOL in an attempt to elucidate the major mechanisms controlling the heat transfer upon the plate and aide improvements in the heat handling capabilities of future LM PFCs.

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