

Abstract Submitted
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First results from the US-PRC PMI collaboration on EAST R. MAINGI, R. LUNSFORD, D. MANSFIELD, A. DIALLO, PPPL, J. HU, Z. SUN, G. ZUO, X. GONG, ASIPP, K. TRITZ, JHU, J. CANIK, ORNL, T. OSBORNE, GA, EAST TEAM — A US-PRC collaboration was formed to understand the plasma-material interface for improved long pulse discharge performance in EAST, with an emphasis on Li conditioning techniques. The US multi-institutional team consists of participants from PPPL, UI-UC, UT-K, ORNL, MIT, LANL, and JHU. In Dec. 2016, this team co-lead experiments on the use of Li aerosol injection to mitigate ELMs, Li granule injection to pace ELMs, and a flowing liquid Li limiter to serve as a primary plasma-facing component. Li aerosol injection was shown to eliminate ELMs using the upper ITER-like W divertor, extending previous results of ELM suppression in the lower carbon divertor (J.S. Hu, PRL 2015). In addition Li granule injection was shown to trigger and even pace ELMs, although the paced ELM frequency was slower than the natural ELM frequency in this set of experiments; previously paced ELM frequency was comparable to natural ELMs frequency (D.K. Mansfield, NF 2013). Finally a second generation flowing liquid Li limiter was shown to be compatible with ELMy H-mode plasmas, pushed within 1 cm of the separatrix. The surface showed no damage to PMI and improved wetting as compared to the first generation limiter experiments (J.S. Hu, NF 2016 and G.Z. Zuo, NF 2017). *US scientists supported in part by US DoE contracts DE-AC02-09CH11466, DE-FG02-09ER55012, DE-AC05-00OR22725, and DE-FC02-04ER54698, and ASIPP scientists by Contract No. 11625524, No.11075185, No.11021565, and No.2013GB114004.

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