Abstract Submitted
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A Lithium Vapor Box Divertor Similarity Experiment[1] ROBERT A. COHEN, Princeton University, ERIC D. EMDEE, ROBERT J. GOLDSTON, MICHAEL A. JAWORSKI, JACOB A. SCHWARTZ, Princeton Plasma Physics Laboratory — A lithium vapor box divertor offers an alternate means of managing the extreme power density of divertor plasmas by leveraging gaseous lithium to volumetrically extract power. The vapor box divertor is a baffled slot with liquid lithium coated walls held at temperatures which increase toward the divertor floor. The resulting vapor pressure differential drives gaseous lithium from hotter chambers into cooler ones, where the lithium condenses and returns. A similarity experiment was devised to investigate the advantages offered by a vapor box divertor design. We discuss the design, construction, and early findings of the vapor box divertor experiment including vapor can construction, power transfer calculations, joint integrity tests, and thermocouple data logging. Heat redistribution of an incident plasma-based heat flux from a typical linear plasma device is also presented.

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