

**LATEST HE PUMPING RESULTS IN THE FLOWING LITHIUM RETENTION
EXPERIMENT (FLIRE)**

B.J. Schultz, P.W. Brenner, D.N. Ruzic, R. Stubbers
University of Illinois – Plasma Material Interaction Group, 103 South Goodwin Avenue
Urbana, IL 61801
bschult2@uiuc.edu

Concerns have recently arisen regarding the validity of previous results on the flowing lithium retention experiment (FLiRE). The experiment consisted of using an ion gun to bombard He ions onto a stream of liquid Li flowing over a ramp. The Li flowed from the ion gun to another chamber where a residual gas analyzer (RGA) was used to measure the He partial pressure. It was stated that He detected in the experiment was the result of implantation into the flowing Li through an ion beam resulting in the ~1% retention needed in a large scale fusion device to obtain adequate ash pumping. Concerns arose that the He seen was not from retention in Li but rather from trapping between the Li and the steel ramp that the Li flows over. It was implied that the He seen could have been a result of the ion beam bombarding the ramp with He ions prior to flow and thus when flow began the ions became trapped between the Li and the ramp. The trapped ions were speculated to be seen in the next chamber rather than ions from retention in the Li. This set of experiments has been recreated to determine if the He seen was a result of retention in the Li or trapping between the Li and the ramp. The latest experiment involved a shutter between the ion beam and the ramp which can be opened and closed during flow to prevent bombardment of the ramp. The results of these experiments and their implications are discussed.