

Abstract Submitted  
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**Li Experiments at the Tokamak T-11M Toward PFC Concept of Steady State Tokamak-Reactor** S.V. MIRNOV, TRINITI, Troitsk, Moscow Region, 142190 Russia — As practical method of using a liquid lithium as a renewable plasma-facing component (PCF) for steady state tokamak-reactor the concept of lithium emitter-collector is considered [1]. It is based on lithium filled capillary porous system proposed by V.A. Evtikhin et al. (1996). The lithium circulation process consists of four steps: (1) Li emission from the PFC emitter into the plasma; (2) plasma boundary cooling by non-coronal Li radiation; (3) Li ion capture by the collector (before they are lost to the tokamak chamber wall); (4) Li return from the collector to the emitter. T-11M tokamak experiments have used three local rail limiters made from lithium, molybdenum and graphite as lithium collectors. The lithium behavior was studied by analysis of the witness samples, and by a mobile graphite probe. The key findings are: (1) lithium collection on the ion side of the lithium limiter is 2-3 times larger than on the electron side; (2) total efficiency of Li collection integrated over all three rail limiters can reach 50-70% of the lithium emission during the discharge pulse, while the theoretical limit is about 90%. [1] S.V. Mirnov, J. Nucl. Mat., **390-391**, 876 (2009).

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