INVESTIGATION OF LITHIUM CAPTURE BY A MULTILAYER COLLECTOR BASED ON CPS AT T-11M TOKAMAk [[1]](#footnote-1)\*)

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Vasina Ya., Prishvitsyn A., Dzhurik A., Otroshchenko V, Lazarev V., Mirnov S.

SRC RF TRINITI, 108840, Russia, Moscow, Troitsk, Pushkovykh st., 12, [ian.vasina@yandexl.ru](mailto:email@email.ru)

An analysis of the data obtained on various tokamaks [1] showed that one of the main obstacles to create a quasi-stationary tokamak - a prototype of an industrial reactor - is the limitation of working discharge duration due to the accumulation of plasma facing components erosion products. In order to overcome this obstacle, the concept of a closed lithium circuit, the main elements of which are lithium emitters and collectors was previously proposed [1]. According to his concept, lithium, as a product of the erosion of the tokamak first wall, should be collected by collectors with subsequent removal from the tokamak chamber.

At the T-11M tokamak, experiments to study the nature of the interaction of particle and energy fluxes arriving at the in-chamber elements of the tokamak are conduct. The report presents the results of a study of the efficiency of lithium capture by a longitudinal-type collector (at an angle to the toroidal magnetic field) made on the basis of a capillary porous system (CPS) formed by different numbers of layers of a stainless mesh (0, 2 and 4) with a cell of 30 μm [2 ].

The collector was exposed in a tokamak discharges. A vertical CPS-based lithium limiter was the main source of lithium. After the end of each experimental campaign , the collector was removed from the tokamak chamber, the grid was cut into separate elements to obtain the lithium distribution along and over the depth of the collector surface. The amount of lithium on each part of the grid was determined by the flame analysis method [3]. This work was supported by JSC Science and Innovation grant Number 313/1694-D.

References

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1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/XLVIII/Mu/ru/AC-Vasina.docx) [↑](#footnote-ref-1)