STUDY OF the lithium collection by a multilayer CPs-based collector in the presence of a vertical limiter with external supply at T-11m tokamak [[1]](#footnote-1)\*)

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The main goal of future tokamaks is the operation in a steady-state regime. In this regard, the problem of choosing the materials for the firs wall is actual. One of the promising solutions is the use of liquid metals, in particular, lithium. This will make it possible to create a renewable coating, which, on the other hand, does not pollute the central plasma, and cools the edge plasma due to radiation and reduces the thermal load to the limiter or divertor.

The lithium program of T-11M tokamak is focused on creating a closed lithium circulation loop, the main elements of which are a lithium emitter and lithium collectors [1]. To create such a circuit, it is extremely important to provide the external feeding of the emitter with lithium without carrying it out to the atmosphere.

The main source of lithium (emitter) at T-11M tokamak is a vertical limiter based on the CPS (Capillary Porus system). A new vertical limiter with the external lithium feed has been installed and tested at T-11M tokamak.

Previously lithium collection on the longitudinal collector at various number of grids was investigated. This work presents the results of the lithium collecting by a longitudinal CPS-based collector with 4 grid layers with a new vertical limiter as the main lithium source. The distribution of the collection by each of the grid layers was investigated. Experimental series were performed with one longitudinal collector, as well as with two symmetrically located collectors one of which was pre-filled with lithium.

The amount of lithium collected by the collector was determined with the flame analysis method [2]. The radial distribution of collected lithium along the collector was obtained for each of the four layers of the grid on the ion and the electron sides for experimental series with the old and new vertical limiters.

References

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