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Energy lifetime increase of the plasma in the regime of pulse maintaining in the L-2M stellarator

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Results of experiments on a quasi-stationary L-2M stellarator in the regime of electron-cyclotron resonance heating using two gyrotrons are presented. The results on increasing the energy lifetime of the plasma using time modulation of microwave pulses are obtained. The first gyrotron at a fixed power served for ionization and primary heating of the plasma, the second provided a stationary discharge with a duration of 10 ms. It is demonstrated that by varying the power of the second gyrotron in the range of 50–200 kW, it is possible to increase the lifetime by 4 times. The work is of interest for research as a method of varying the parameters of thermonuclear plasma.

Keywords: high-temperature plasma, thermonuclear fusion, energy lifetime, stellarator, electron-cyclotron heating, gyrotrons.

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