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Title:The investigation of subterahertz gyrotron for DNP spectroscopy in the IAP RAS

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Abstract:The paper presents the results of research is carried out in the Institute of Applied Physics and is aimed at creating a CW submillimeter gyrotrons with an output power of several tens of watts. Results of experiments on the 258 GHz gyrotron at the second harmonic of the gyrofrequency are presented. In the course of experiments maximum output power of 200 W and the relative stability of the output frequency at $5 \cdot 10^{-6}$ for the hours-long continuous operation of the gyrotron were achieved. Also the paper considers suggestions for further improvement of the gyrotrons' characteristics of this class, including the expansion of the frequency band.

Number of references:13

Inspec controlled terms:gyrotrons - millimetre wave tubes - nuclear polarisation - terahertz wave devices

Uncontrolled terms:subterahertz gyrotron - DNP spectroscopy - IAP RAS - Institute of Applied Physics - CW submillimeter gyrotrons - gyrofrequency - second harmonic - maximum output power - output frequency - gyrotron characteristics - frequency band expansion - frequency 258 GHz - power 200 W

Inspec classification codes:A7670E Dynamical nuclear polarization (condensed matter) - B2350 Microwave tubes

Numerical data indexing:frequency 2.58E+11 Hz;power 2.0E+02 W

Treatment:Practical (PRA)

Discipline:Physics (A); Electrical/Electronic engineering (B)

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