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Title:On optimization of sub-THz gyrotron parameters

Authors: Dumbrajs, O. (1); Nusinovich, G.S. (2)

Author affiliation:(1) Institute of Solid State Physics, University of Latvia, Kengaraga Street 8, LV-1063 Riga, Latvia; (2) Institute for Research in Electronics and Applied Physics, University of

Maryland, College Park, MD 20742-3511, United States

Corresponding author: Dumbrajs, O.

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Abstract:The theory is developed describing how the optimization of gyrotron parameters should be done taking into account two effects deteriorating the gyrotron efficiency: the spread in electron velocities and the spread in the guiding center radii. The paper starts from qualitative analysis of the problem. This simplified theory is used for making some estimates for a specific gyrotron design. The same design is then studied by using more accurate numerical methods. Results of the latter treatment agree with former qualitative predictions. © 2012 American Institute of Physics.

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