460
Accession number:WOS:000304831100034
Title:Nonlinear theory for a terahertz gyrotron with a special cross-section interaction cavity
Authors:Yuan, X.S. (1); Lan, Y. (2); Han, Y. (1); Yan, Y. (1)
Author affiliation: (1) Univ Elect Sci & Technol China, Sch Phys Elect, Chengdu 610054, Peoples R China; (2) Chengdu Text Coll, Chengdu 611731, Peoples R China
Source title:PHYSICS OF PLASMAS
Abbreviated source title:PHYS PLASMAS
Volume:19
Issue:5
Issue date:MAY 2012
Pages:053107
Language:English
ISSN:1070-664X
Document type:Article
Publisher:AMER INST PHYSICS, CIRCULATION & FULFILLMENT DIV, 2 HUNTINGTON QUADRANGLE, STE 1 N O 1, MELVILLE, NY 11747-4501 USA
Abstract:The fully numerical nonlinear theory for a gyrotron with a special cross-section interaction cavity has been developed in this paper. In this theory, the analytical solution to different modes in the special cross-section interaction cavity is replaced by the numerical solution based on electromagnetic simulation results. A 0.4 THz third harmonic gyrotron with an azimuthally corrugated interaction cavity has been investigated by using this theory and simulation results show that this approach has a significant advantage of developing high harmonic terahertz gyrotrons. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4714755]
Number of references:18
Main heading:Physics
DOI:10.1063/1.4714755