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Title:Nonlinear theory for a terahertz gyrotron with a special cross-section interaction cavity
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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.
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