Abstracts

Slow Wave Gyrotron Amplifier with a Dielectric Center Rod

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The broad-band capability of the gyrotron amplifier with a dielectric center rod is investigated. The dispersion relation for the TE mode perturbation is obtained, and the system parameters for the optimum bandwidth are obtained for a small axial velocity spread. It is found that the dielectric center rod extends the frequency range of the intermediate wavelength mode (IWM), and reduces the contribution of the troublesome short wavelength mode (SWM). The bandwidth and the gain due to the IWM for the center rod geometry are superior to those for the wall clad dielectric gyrotron.

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