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标题: Josephson plasma oscillations in confined layered superconductors
作者: Khankina, SI (Khankina, S. I.); Yakovenko, VM (Yakovenko, V. M.); Yampol'skii, VA (Yampol'skii, V. A.)
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摘要: Intrinsic electromagnetic oscillations were investigated in layered superconductors of finite dimensions, filling a rectangular resonator. Spectra of both ordinary and extraordinary eigenmodes were obtained. A nonlinear effect of decreasing eigenfrequencies of extraordinary modes was analyzed and generation of the third harmonic of oscillations was studied. A nonlinearity of the system is related to a nonlinear dependence of the Josephson current density across superconducting layers on interlayer phase difference of the order parameter. Josephson plasma waves running along a waveguide filled with a layered superconductor were investigated as well as nonlinear effects appearing during propagations of these waves. In addition, in the work, an effect of the slowing down of terahertz waves in waveguides, which is caused by a mutual effect of nonlinearity and damping of waves is predicted. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.3691528]
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地址: [Khankina, S. I.; Yakovenko, V. M.; Yampol'skii, V. A.] A Ya Usikov Inst Radiophys & Elect NAS Ukraine, UA-61085 Kharkov, Ukraine
[Yampol'skii, V. A.] Abdus Salam Int Ctr Theoret Phys, I-34151 Trieste, Italy
通讯作者地址: Khankina, SI (通讯作者),A Ya Usikov Inst Radiophys & Elect NAS Ukraine, Ul Akad Proskura 12, UA-61085 Kharkov, Ukraine
电子邮件地址: yam@ire.kharkov.ua
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