

Abstract Submitted
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Influence of Dissipation on Weak Beam-Plasma Interaction EDUARD ROSTOMYAN, Institute of Radiophysics and Electronics Armenian National Ac. Sci. — Present investigation substantiates a new type of dissipative beam instability that develops in conditions weak beam-plasma coupling i.e. when the beam and the plasma fields are overlapped slightly. Waveguide with plasma and beam layers is considered. Consideration is carried out in general form, without specifying the shape of the waveguide's cross-section. The approach actually corresponds to perturbation theory and is based on smallness of beam-plasma coupling. Depends on combinations of parameters the system may be stable or (in absence of dissipation) instability may be due to excitation of negative energy beam wave. Dissipation leads to a new type of dissipative beam instability with growth rate that depends on dissipation inverse proportionally. The growth rate is calculated for an arbitrary level of dissipation i.e. for arbitrary value of the ratio of dissipation to the growth rate of no dissipative instability.

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