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**Revisiting Pierce Instability: Bandwidth Structure of Growth Rate of Two-Stream Instability of an Electron Beam Propagating in a Bounded Plasma** IGOR D. KAGANOVICH, Princeton University, DMYTRO SYDORENKO, University of Alberta, Canada — The two-stream instability of an electron beam propagating in finite-size plasma placed between two electrodes is studied analytically and numerically. It is shown that the growth rate in such a system is much smaller than that of infinite plasma or finite size plasma with periodic boundary conditions. We show that even if width of the plasma matches the resonance condition for standing waves; standing waves do not develop and transform into spatially growing wave, whose growth rate is small compared to that of the standing wave in a system with periodic boundary conditions; this growth rate is approximately described by $\gamma \approx {}^{1}\!/_{13}\omega_{pe}\,(n_b/n_p)\,(L\omega_{pe}/v_b)\ln(L\omega_{pe}/v_b)$, where $\omega_{pe}$ is the electron plasma frequency, $n_b$and $n_p$ are beam and plasma densities, respectively, and $v_b$ is the beam velocity, $L$ is the plasma width. The frequency and growth rate as a function of plasma width form a bandwidth structure.

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