NONLINEAR INTERACTIONS OF KINETIC WAVES WITH SURFACE POLARITONS IN A SEMICONDUCTOR SUPERLATTICE

A. A. Bulgakov, V. V. Moskalenko

Skovoroda Kharkiv State Pedagogical University
(*2, Blyukhera Str., Kharkiv 61168, Ukraine*)

S u m m a r y

The nonlinear electrodynamics of the structure which is formed with a uniform plasma-like semispace and the semiconductor layer-periodical structure (classical superlattice) is researched. The matrix element of the three-wave interaction between own plasma waves of the structure and kinetic waves is received and analyzed analytically and numerically, and waves which interact in the presence of the processes of dissipation and excitement are described analytically. The necessary conditions for stabilization of instability are received and values of stationary amplitudes are evaluated. The evolution of amplitudes on the phase plane is analyzed.