OSCILLATIONS OF OPTICAL CONDUCTIVITY AND EMISSION IN QUANTUM METALLIC CONDUCTORS

P. M. Tomchuk

Institute of Physics, Nat. Acad. Sci. of Ukraine
(*46, Nauky Prosp., Kyiv 03028, Ukraine*)

S u m m a r y

The theoretical investigation of the influence of electron energy spectrum quantization on optical conductivity and photon emission (in the presence of hot electrons) in thin metallic conductors is performed. It is shown that the presence of discrete spectrum leads to the emergence of oscillating addends in the expression for the absorption energy and spectral density of emission. Nature of oscillations depends on frequency, conductor radius, and Fermi energy. Analytic expression for the oscillating addends are obtained.