

CROSS-SECTIONS OF ELECTRIC AND MAGNETIC
LIGHT ABSORPTION BY SPHERICAL METALLIC
NANO-PARTICLES. THE EXACT KINETIC
SOLUTION

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S u m m a r y

The electric and magnetic cross-sections of light absorption by spherical metal particles, whose nanometer dimensions can be smaller than the electron free path, have been calculated. The approach is based on solving the kinetic equation with diffuse boundary conditions describing the reflectance of an electron from the interior side of the particle's walls. Analytical expressions, which allow the value of the cross-section to be determined in terms of the particle's radius and the frequency of incident electromagnetic radiation, have been obtained in the case, where the skin-layer is thicker than the characteristic size of the particle.