

OPTICAL CONDUCTIVITY OF METALIC NANOSHELLS

P. M. Tomchuk, Vol. V. Kulish

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

¹National Technical University
'Kyiv Politechnical Institute'
(37, Peremogy Prosp., Kyiv 03056, Ukraine)

S u m m a r y

The expression for optical conductivity of a spherical metallic nanoshell as a function of internal and external radii of a nanoshell and the photon energy – Fermi energy ratio is obtained. The result is extended to the case of a nanoshell with small ellipticity where the explicit expression for optical conductivity is obtained and the error of the approximation of a nanoshell with a sphere is estimated. It is shown that the result for a spherical nanoshell is stable relative to a small deformation of the shell into an ellipsoid.