

DEPENDENCE
OF LIGHT SCATTERING CROSS-SECTION
BY METAL NANOPARTICLES ON THEIR SHAPE

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S u m m a r y

A theory of light scattering by ellipsoidal metal nanoparticles, the size of which is smaller than the free electron path length in those nanoparticles and much smaller than the light wavelength, has been developed. Effects of nanoparticle shape on both the frequencies and the band half-widths of plasmon resonances have been taken into account. The tensor character of the optical conductivity, which is typical of ellipsoidal metal nanoparticles with such dimensions, has been considered for the first time in the framework of the light scattering problem. The obtained formula for the scattering cross-section demonstrates a substantial influence of the nanoparticle shape on the frequency and polarization dependences of scattered light.