

Rayleigh scattering of a metal nanoparticle on a flat dielectric surface

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<https://doi.org/10.1109/SMICND.2010.5650386>

Abstract

It is shown experimentally and theoretically that electromagnetic interaction of a nanoparticle with a flat dielectric surface leads to occurrence of an additional peak in the spectrum of Rayleigh scattering which is due to the contribution from quadrupole components in addition to the dipole ones. The experiments were performed for silver nanoparticles placed on a GaP surface as well as inside a GaP porous template. The theoretical considerations are based on the Drude model of electromagnetic properties of a metal.

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