

DEPENDENT ABSORPTION AND SCATTERING BY INTERACTING NANOPARTICLES

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ABSTRACT. Dependent light scattering and absorption patterns of metallic nano-sized particles in interaction with other spherical and cone-like structures were investigated. The numerical solution of the light scattering problem was obtained using DDSCAT7.0 code. The surface integration of the Poynting vector is performed to estimate the spectral absorption by individual particles. Parametric studies were conducted to examine the effects of different parameters, including the geometry, size, shape and the position of the particles, the wavelength, polarization and the direction of the incident light. It was observed that the proximity of particles contribute most to the intricate scattering and absorption patterns. The formulation provided on dependent light absorption and scattering may be used for diagnosis purposes and to improve the AFM based nano-manufacturing.