MODELLING OF INTERACTION OF ELECTROMAGNETIC FIELD WITH SMALL DISPERSE PARTICLES OF COMPOSITE GEOMETRY

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In our work we consider an interaction of electromagnetic field with small disperse particles of different nature that has an interest in nanotechnology. Really small particles existing in nature can have manifold form so we have developed the methods for researching of such particles having combined the Mie Theory, The Poincare-Huygens principle and T-matrix method that lets to find values of vectors of electric and magnetic fields inside particles of different shape geometry. We have obtained the common formulas for electric and magnetic fields generalizing the results of Mie Theory when dielectric permeability of particles has complex values changing from one point to another and we have obtained the solution of finding inner electromagnetic field using the asymptotic and the numerical methods. We also have generalized our researching for particles with fractal surface. In that case the integrals on a particle surface are Lebesgue integrals. Besides we have an interest to consider particles with negative dielectric permeability. Results of such researching can be of interest in war industry.

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