Abstracts

Scattering from a Sphere of Small Radius Embedded Into a Dielectric One

J.A. Roumeliotis, N.B. Kakogiannos and J.D. Kanellopoulos. "Scattering from a Sphere of Small Radius Embedded Into a Dielectric One." 1995 Transactions on Microwave Theory and Techniques 43.1 (Jan. 1995 [T-MTT]): 155-168.

In this paper, the scattering of a plane electromagnetic wave from a metallic or dielectric sphere of electrically small radius, embedded into a dielectric one, is considered. The classical method of separation of variables is used, combined with translational addition theorems for spherical vector wave functions. Analytical expressions are obtained for the scattered field and the various scattering cross-sections, in the case of an inner sphere with electrically small radius. Numerical results are given for various values of the parameters and for metallic and dielectric inner sphere. Some remarks are made about the possibility of detection or identification of inhomogeneities or nonsymmetries.

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