

Circularly polarised electromagnetic wave scattering on bi-isotropic full-sphere in chiral medium

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A boundary problem about plane circularly polarized electromagnetic wave scattering on bi-isotropic full-sphere located in natural chiral medium is solved. Exact analytical expressions for the electromagnetic fields inside and outside the full-sphere are obtained. Expansion of all waves on the full and orthonormalized system of spherical vectors is used for the solution of the problem.

Particular cases are discussed:

- a) the containing medium is not naturally chiral, but magneto-dielectric isotropic,
- b) the scattering full-sphere is not bi-isotropic, but chiral, having parameters different from the containing medium.

It is shown that our solution coincides in these two particular cases with known solutions [1, 2].

References

[1] Belichenko V. P., Fisanov V.V., Russian Journal of Physics.- 1994.- N10.- P.108-112.

[2] Godlevskaya A.N., Kapshay V.N., Opt. and Spectr.-1990.- T.68.- N1.- P.122-127.