

On reflection and refraction of the electromagnetic waves on the linear and nonlinear media interface

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Abstract

The method of the auxiliary Cauchy problem for the Maxwell equations is used to solve the scalar problem on the fall of the plane wave on the linear and nonlinear media interface. The necessary and sufficient conditions on the traces of the Cauchy problems solutions in the upper and lower semi-spaces are obtained in terms of the Fourier transforms. The initial problem is reduced to algebraic system of equations consisting of these relations and fields conjunction condition on the media interface.
