

APPLICATION OF THE DISPERSIVE FDTD METHOD FOR STUDYING DIFFERENT EFFECTS WHICH LIMIT THE RESOLUTION OF SUB - WAVELENGTH OF LHM SLAB

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ABSTRACT

The metamaterials electromagnetic one are composites artificial made up of a matrix dielectric or magnetic and inclusions dielectric magnetic or metal. These inclusions can be laid out in the matrix either in a random way or in an ordered way; their size is generally small in front of the wavelength.

Research on materials with negative refractive index (NRI) and in particular on the left-handed material (LHM) or metamaterial ones developed very quickly and they have leads to many applications for example in, the radars, the lines of transmission, one of the applications most promising is the perfect lens.

In this work, we applied the dispersive FDTD method for study different effects limiting the resolution of sub-wavelength of LHM slab. To check the validity of our results we compared the variation of transmission coefficient obtained numerically with that calculated analytically.

KEYWORDS: *Metamaterial, LHM, FDTD, NRI, Perfect Lens*

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