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基于麦克斯韦电路理论的方环散射体

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Investigation on Square Loop Scatterers by Maxwellian Circuits

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摘要 不同于传统数值计算方法，麦克斯韦电路(MC)理论融合了场的理论和路的理论，使二者高效地结合在一起.运用麦克斯韦电路理论分析方环散射体，研究方环散射体的MC求解方法以及MC的宽带特性，求出其散射电流，数值实验结果与矩量法结果吻合良好.研究还发现，MC可以在一个较宽的频带上得到准确电流解，因此，比其他数值方法更加高效和实用.

关键词： 麦克斯韦电路理论 方环散射体 矩量法

Abstract: Different from traditional numerical methods, the theory of Maxwellian circuits (MC) combines the field theory and the circuit theory, providing a perfect connection of the two. In this paper, square loop scatterers are analyzed with MC. The methods of solving square loop scatterer and broadband characteristics of MC are investigated, and current distributions obtained. Numerical results show that the solutions are the same as those obtained with the method of moments (MoM). It has been found that MC can provide solutions over a quite wide range of frequencies, which is more efficient and practicable than other numerical methods.

Keywords: theory of Maxwellian circuits (MC), square loop scatterer, method of moments (MoM)

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