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论文

基于Inagaki模式方法分析导体内谐振特性

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摘要
当应用电场积分方程或磁场积分方程对导体散射特性进行矩量法分析时，在某些离散的频率点即内谐振点上，常常出现解的不稳定或不唯一情况。为了解决这一问题，该文提出了一种新型的消除内谐振的方法。这种方法基于电场积分方程，利用Inagaki模性质有效地去除了谐振模式，获得内谐振条件下正确的导体散射特性。该方法具有概念清晰和计算简便等优点。计算结果与公开发表的文献结果以及解析解相比，一致性良好。

关键词 电磁散射 矩量法 Inagaki模 电场积分方程 磁场积分方程 内谐振

分类号 0441

Inagaki Mode Approach to Electromagnetic Scattering of Conducting Bodies at Interior Resonances

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Abstract
When either electric field integral equation or magnetic field integral equation is employed to analyze electromagnetic scattering of conducting bodies, at some discrete resonance frequencies, the solution of Method Of Moments(MOM) matrix will be nonunique or unstable. In this paper, a new effective method is presented to solve this problem. At the interior resonance frequencies, Inagaki mode method, based on electric field integral equation, is used to filter out resonance modes and obtain right parameters. The proposed method possesses the merits of clarity in concept and simplicity in computation. A good agreement is achieved between the calculated results and the published as well as the analytical results.

Key words Electromagnetic scattering Method Of Moments(MOM) Inagaki mode Electric Field Integral Equation(EFIE) Magnetic Field Integral Equation(MFIE) Interior resonance

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