

## 基于MoM-PO的各向异性阻抗面电磁散射研究

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## Analysis of the Electromagnetic Scattering for Anisotropic Impedance Surface Based on MoM-PO Method

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摘要

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**摘要** 该文基于阻抗边界条件(IBC),采用矩量法-物理光学(MoM-PO)混合算法,研究了3维各向异性阻抗面的电磁散射特性。根据表面等效原理,将空间散射场等效为MoM区和PO区电磁流的辐射场,感应电磁流以3维RWG (Rao-Wilton-Glisson)矢量基函数展开。以表面阻抗并矢表征电磁参数,给出典型各向异性阻抗面目标的电磁仿真算例,结果与Mie级数等精确解吻合良好,显示了该方法的有效性。

**关键词:** 电磁散射 各向异性 阻抗边界条件 矩量法-物理光学混合算法

**Abstract:** Based on Impedance Boundary Condition (IBC), a Method of Moments-Physical Optics (MoM-PO) hybrid method is proposed for modeling the electromagnetic scattering from three-dimensional (3-D) anisotropic impedance surface. The surface equivalence principle is adopted while the scattering can be replaced by the radiation of surface electromagnetic currents in the MoM-and the PO-region, with the current expanded by 3-D Rao-Wilton-Glisson (RWG) vector basis functions. The simulation of target coated with anisotropic material is performed with the electromagnetic parameters characterized by the surface impedance dyadic, while the numerical results agree well with the exact solutions such as Mie series, which shows the validity of the proposed method.

**Keywords:** Electromagnetic scattering Anisotropic Impedance Boundary Condition (IBC) Method of Moments-Physical Optics (MoM-PO) hybrid method

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