航天电子技术

# 复杂飞行器目标强散射区求解及RCS减缩

刘忠铁1,2，马东立1，楚亮1

1. 北京航空航天大学航空科学与工程学院， 北京 100191；2. 空军装备研究院总体所， 北京 100076

摘要：

对目标表面强散射区涂敷雷达吸波材料（radar absorbing material, RAM）是雷达散射截面（radar cross section, RCS）减缩的有效方法。基于射线追踪法（shooting and bouncing rays, SBR）提出一种确定复杂目标强散射区的方法：根据射线管出射方向与雷达接收方向的夹角判断强散射区。分析了复杂目标强散射区涂敷RAM的RCS减缩特性，并研究了判断夹角取不同值时强散射区大小和涂覆RAM后的减缩效果。计算结果显示，对强散射区涂覆RAM可以在重量增加不大的情况下有效降低目标RCS值。

关键词： 强散射区 射线追踪法 涂覆 RCS减缩

# Complex aircraft target strong scattering region solving and RCS reduction

LIU Zhong-tie1,2, MA Dong-li1, CHU Liang1

1. School of Aeronautics Science and Engineering, Beihang University, Beijing 100191, China; 2. General Institute, Air Force Equipment Academy, Beijing 100076, China

Abstract:

Coating the strong scattering region of target surface with radar absorbing material (RAM) is one of the effective methods for radar cross section (RCS) reduction. A definition of strong scattering regions based on shooting and bouncing rays (SBR) is given: judging a strong scattering region based on the included angle between outgoing direction of rays and receiving direction of radar. The RCS reduction characteristic of complex target's strong scattering region coating RAM is analyzed, and the size of the strong scattering region and the RCS reduction effects with different judging included angles are studied. Calculation results show that the strong scattering region coating RAM can reduce RCS with a limited increase in weight.

Keywords: strong scattering region   shooting and bouncing rays   coating   RCS reduction

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