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控制理论与实践

乘波体前体/进气道优化设计及性能分析

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摘要：

在以圆锥流场生成乘波体外形基础上,对乘波体前体和冲压发动机进气道进行了优化设计。乘波体前体以设计点（Ma=4.5）为优化基础,综合考虑在各个飞行马赫数下的最佳气流转角问题。数值模拟结果表明,该方法设计的乘波体外形符合乘波反设计原理，在整个飞行马赫数范围内发动机的进气道性能良好。

关键词： 乘波体前体 进气道 优化设计 性能分析

Optimization design and performance analysis for waverider forebody and inlet

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Abstract:

On the basis of the waverider configuration generated from the cone flow, the optimization design is conducted on the waverider forebody and the ramjet inlet. The design point (Ma=4.5) is the optimization basis for the waverider forebody, and the problem of the best flow turning angle under various flight Mach numbers is comprehensively taken into consideration. The numerical simulation results show that the waverider configuration designed by using this method conforms to the theory of waverider inverse designs and the ramjet inlet is of good performance in the whole range of flight Mach numbers.

Keywords: waverider forebody inlet optimization design performance analysis

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